

TARO

ASSEMBLY GUIDE

revision 1.0

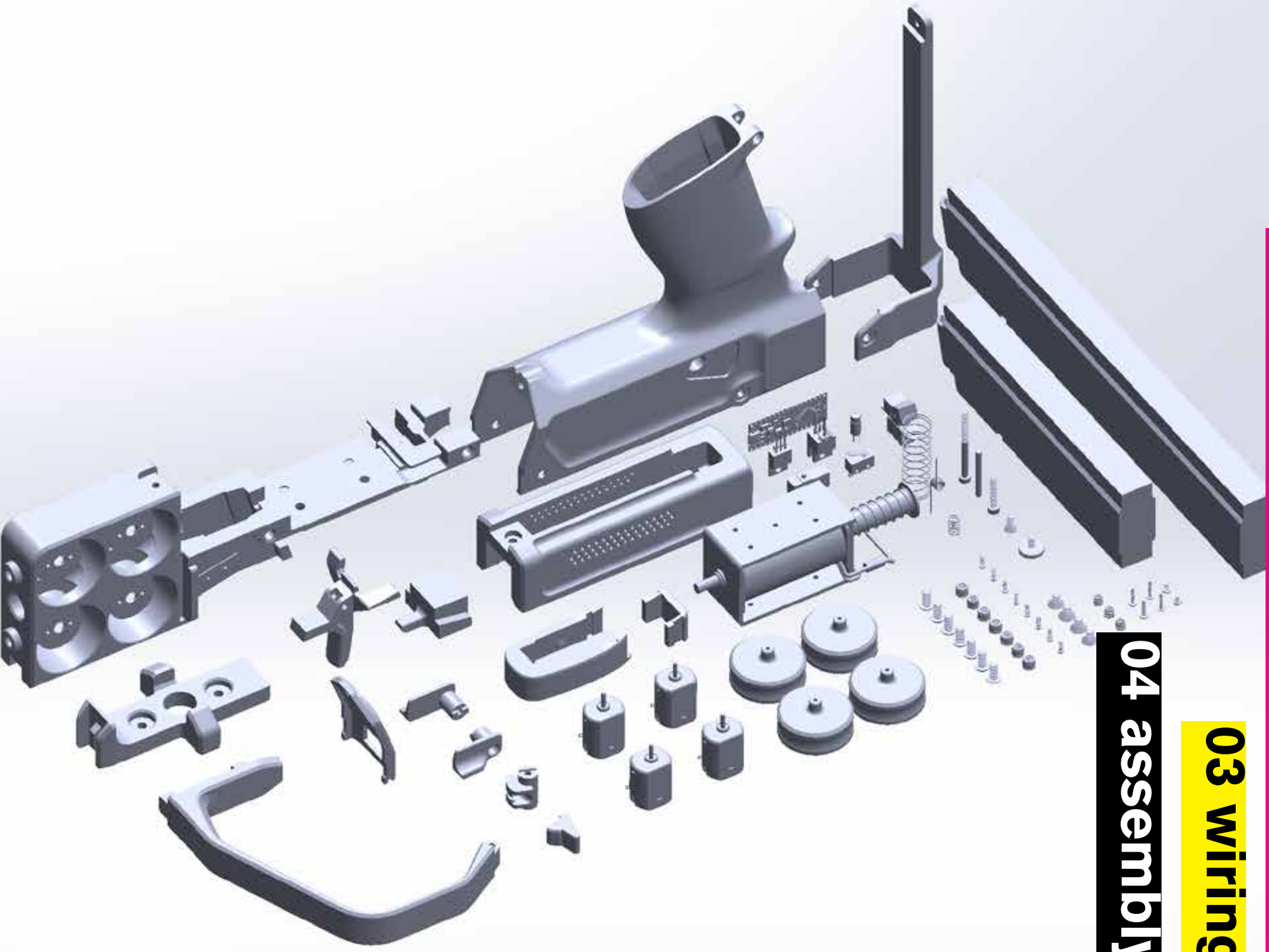

hypersurface studio

01 bill of materials



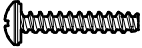




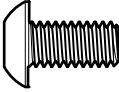
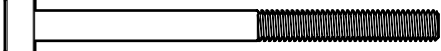
02 print orientation + notes



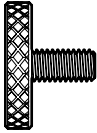




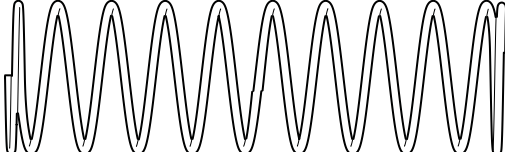
03 wiring

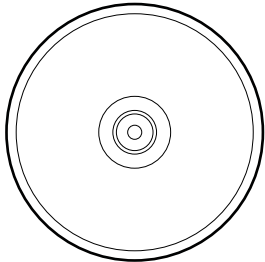
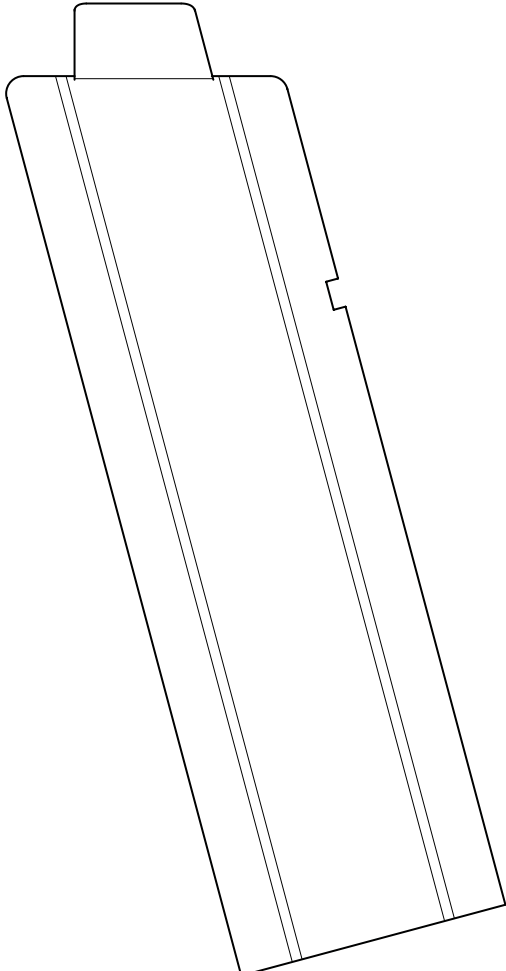
04 assembly



Item	Purpose	Qty	Source	Part Number
Nerf Parts				
Talon Magazine, Angled	Dart Feeding Source	1		
Flywheel, RapidStrike/Stryfe Compatible	Propulsion	4		
Out Of Darts Kraken 130 Motor	Propulsion	4	Out of Darts	
Graphene 0.95 Ah 3s LiPo Battery	Power	1	Out of Darts	
Electronics				
IRLB3034 MOSFET	Driver/Switching	3	DigiKey	4518-IRLB3034-ND
1N5400 Diode	Backfeed MOSFET Protection	3	DigiKey	1N5400G-T
1N4001 Diode	Arduino Power Stabilizer	1	DigiKey	1N4001G-T
100 μ F Capacitor	Arduino Power Stabilizer	1	DigiKey	ESK107M025AE3KA
Resistor, 10k ohm	MOSFET Pull Down, Voltage Monitor	3	DigiKey	RNF14FTD10K0
Resistor, 1k ohm	Voltage Monitor	1	DigiKey	RNF14FTD1K00
Solenoid, 35mm	Dart Feeder	1		
NKK MN13TNW01-DA Rocker Switch	Fire Selector	1	DigiKey	360-MN13TNW01-DA-ND
Omron D2F 01FL D3	Flywheel Trigger Switch	1	DigiKey	Z4700-ND
Cherry DB2 10A	Solenoid Trigger Switch	1	DigiKey	CH886-ND
XT60 Male Connector	Battery Connector	1	DigiKey	1568-1816-ND
Arduino Nano Every	Blaster Controller	1	DigiKey	1050-ABX00028-ND
16 AWG wire, Silicone	Wiring, Solenoid + Motor			
22 AWG wire, Silicone	Wiring, Arduino + Switches			
Springs				
Solenoid Spring	Solenoid Spring Upgrade	1	Lee Spring	LP 032KL 05S316
Torsion Spring	Trigger Return Spring	1	McMaster	9271K94
Compression Spring	Magazine Release Spring	1	McMaster	9657K673
Fasteners				
Screw, M2x4mm	Flywheel Motor Mounting	8	McMaster	91263A411
Heat Set Insert, M3x4.3mm	Mounting - Trigger Guard, Magazine Release Lever, Slide Standoff, Battery Door	6	McMaster	94459A130
Screw, Flat Head, M3x8mm	Mounting - Slide Standoff	1	McMaster	91294A128
Screw, Socket Head, M3x18mm	Trigger Guard Screw Mounting	1	McMaster	91290A121
Screw, Socket Head, M3x40mm	Magazine Release Lever	1	McMaster	91292A024
Thumbscrew, M3	Battery Door Mounting	1	McMaster	92552A411
Heat Set Insert, M4x4.7mm	Mounting - Main Chassis, Grip Frame, Muzzle Cap, Dart Striker	7	McMaster	94180A351
Screw, Flat Head, M4x6mm	Solenoid Mounting	4	McMaster	92125A186
Screw, Button Head, M4x8mm	Mounting - Grip Frame, Muzzle Cap, Dart Striker	7	McMaster	92095A189
Screw, Self Tapping, #1x3/8"	Flywheel Switch Mounting, Magazine Baseplate	3	McMaster	99461A620
Screw, Self Tapping, #2x1/8"	Selector Switch Mounting	2	McMaster	92525A102
Screw, Self Tapping, #2x3/8"	Solenoid Switch Mounting	2	McMaster	99461A725
Dowel Pin, Stainless,, 3mm \varnothing x 28mm	Trigger Pivot	1	McMaster	93600A405
1.75mm Filament, 6.5mm long	Dart Striker Roller Pin	1		
Small Zip Ties, 2.6mm wide	Wire Routing	4		

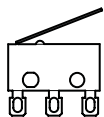
- x2** #2 x 1/8" Self Tapping Screw 
- x2** #2 x 3/8" Self Tapping Screw 
- x2** #1 x 3/8" Self Tapping Screw 
- x8** M2 x 4mm 
- x1** M3 x 8mm 
- x1** M3 x 18mm 
- x4** M4 x 6mm 
- x7** M4 x 8mm 
- x1** M3 x 40mm 

- x3** M3 x 4.3mm Threaded Insert 
- x7** M4 x 4.7mm Threaded Insert 
- x1** M3 x 6mm Thumbscrew 
- x1** 1.75mm filament, 6.5mm long 
- x1** 3mm Ø x 28mm Dowel Pin 
- x1** Magazine Release Spring 
- x1** Trigger Reset Spring 
- x1** Solenoid Upgrade Spring 

- x4** 34-36mm Flywheel, 2.0mm Ø Bore 
- x1** Worker Talon Magazine, Angled 

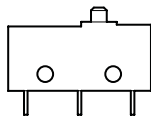
Omron D2F 01FL D3 SPDT Switch

x1



Cherry DB2 10A SPDT Switch

x1



100µF 25v Capacitor

x1



10K Ohm Resistor

x2



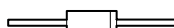
1N4001 Diode

x3



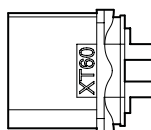
1N5400 Diode

x3



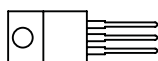
XT60 Male Connector

x1



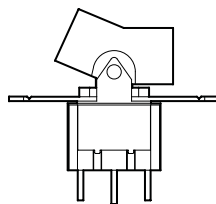
IRLB3034 MOSFET

x3



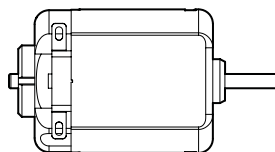
NKK M2013TNW01-DA

x1



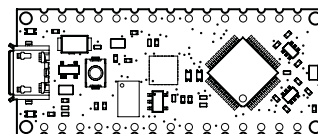
130 Motor (Kraken Only)

x4



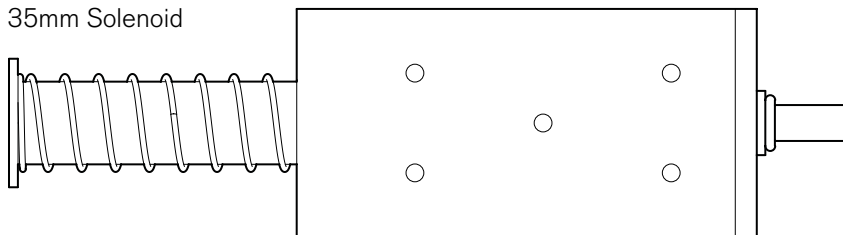
Arduino Nano Every

x1



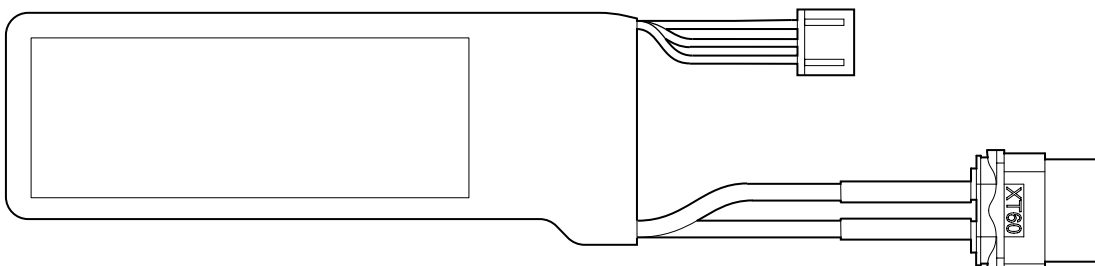
35mm Solenoid

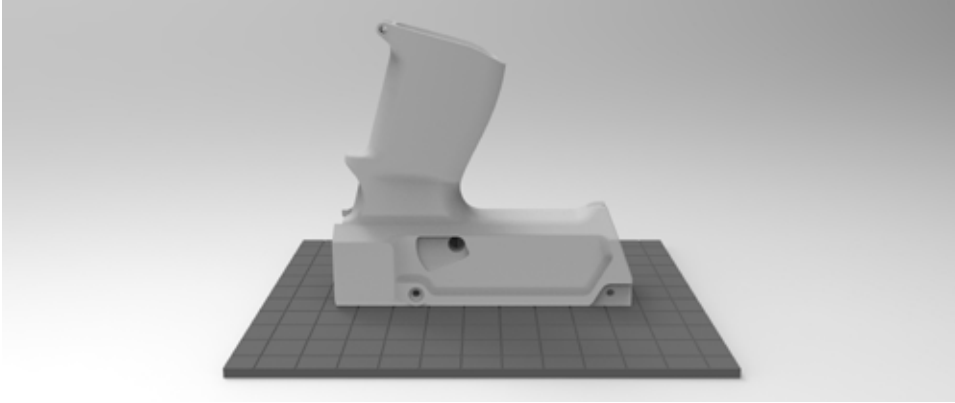
x1



Turnigy Graphene 950mAh 65c 3s LiPo Battery, XT-60 connector (equivalent or smaller)

x1





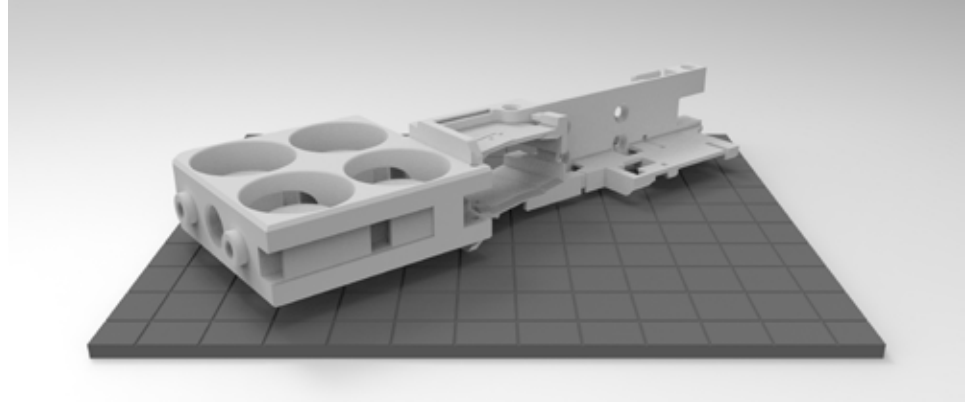
Grip Frame

0.1-0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Required



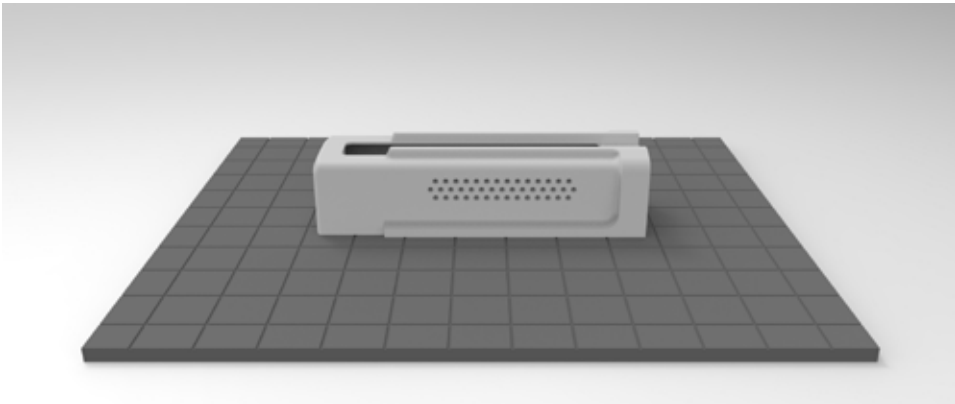
Main Chassis

0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Optional



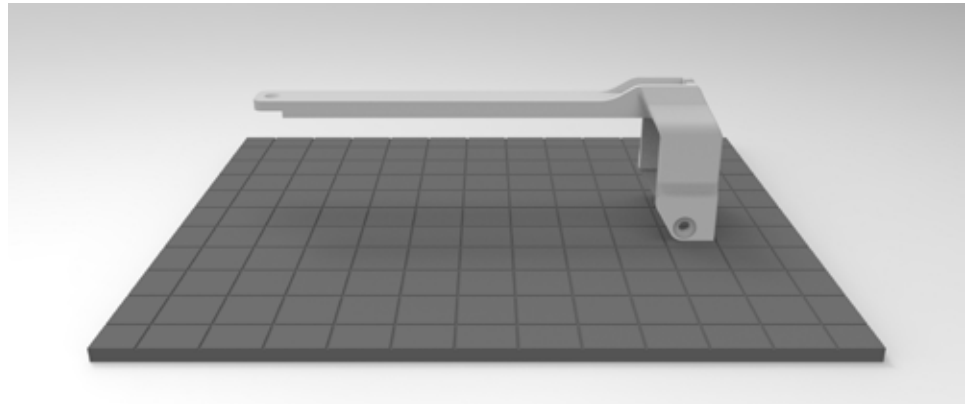
Slide

0.1-0.2 mm Layer Height

2-3 Walls

10% Infill

Brim Required



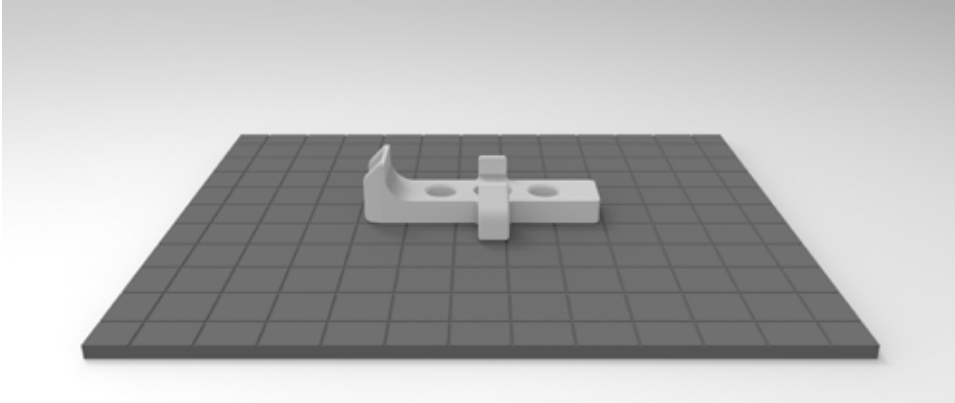
Slide Standoff Sight Rail

0.1-0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Optional



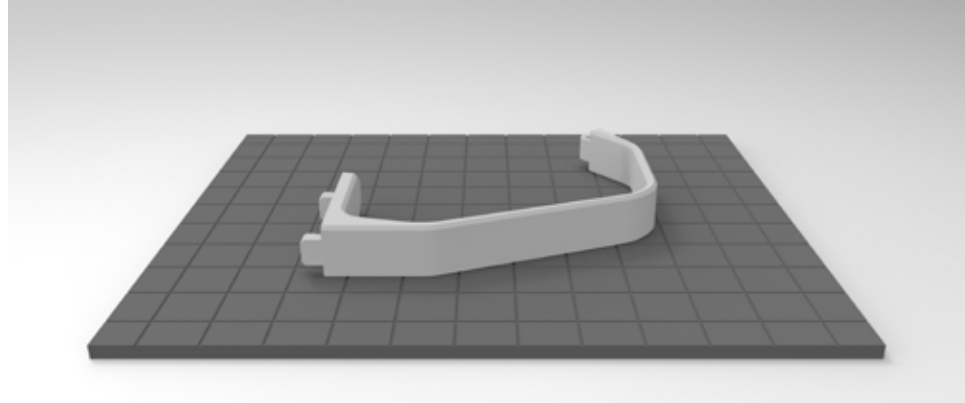
Muzzle Cap

0.1-0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Optional



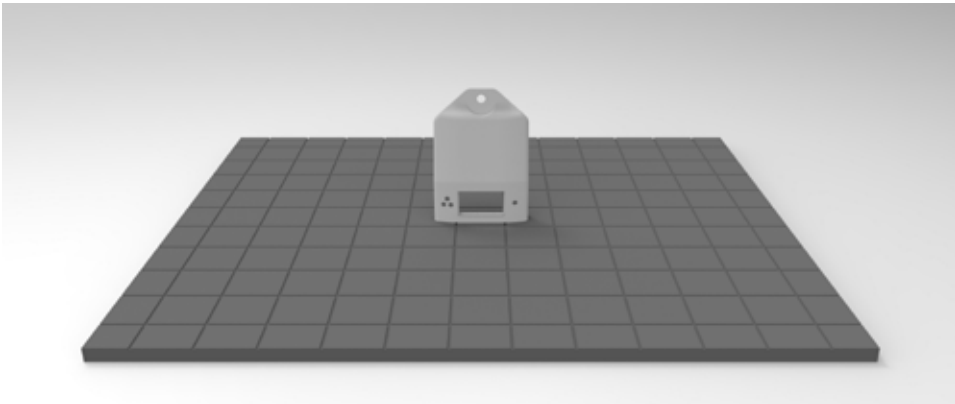
Trigger Guard

0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Optional



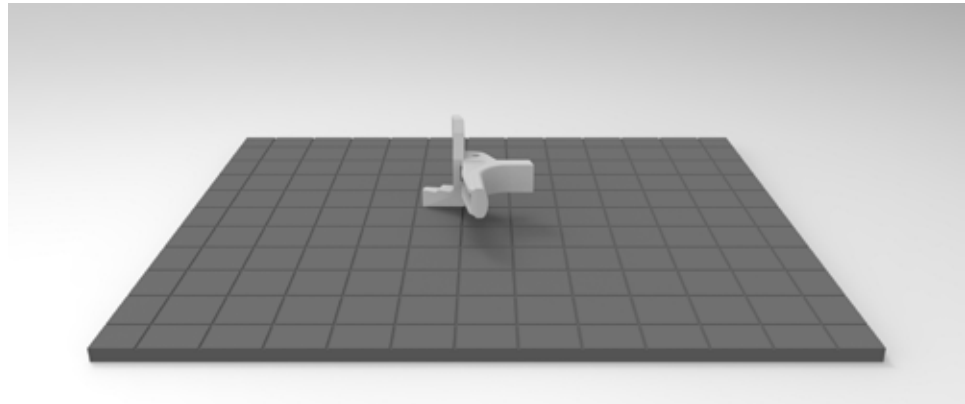
Battery Door

0.1-0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Necessary



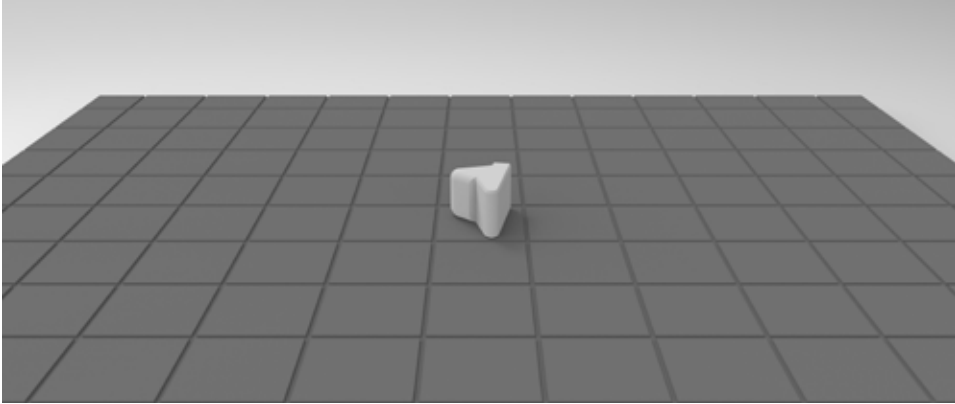
Trigger

0.1-0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Optional



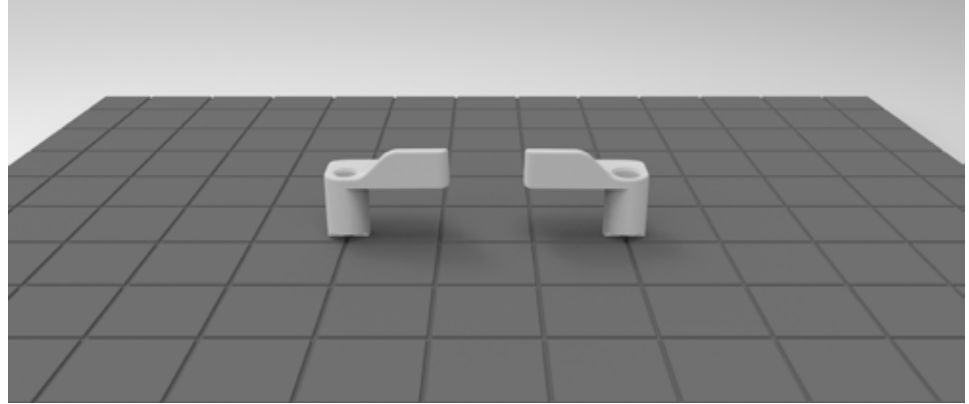
Magazine Catch

0.1-0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Optional



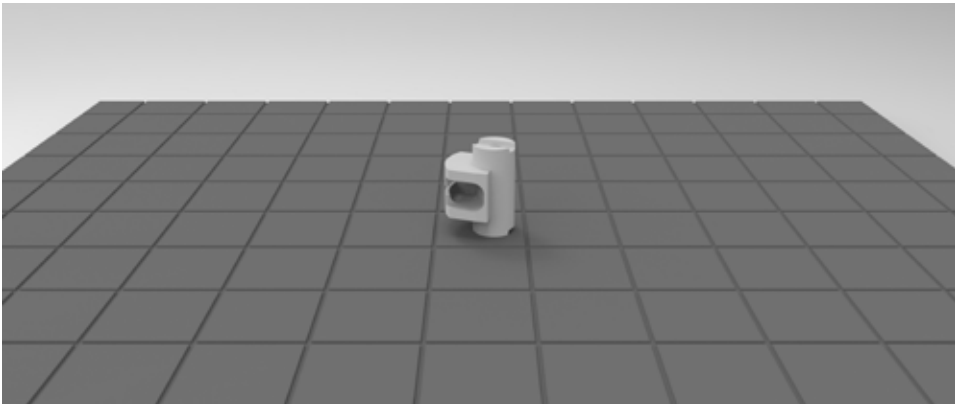
Magazine Release Lever (Left + Right)

0.1-0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Optional



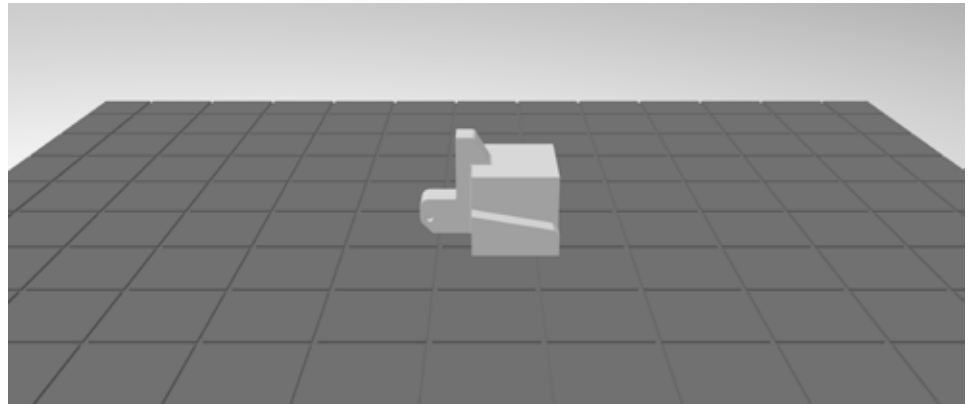
Magazine Release

0.1-0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Optional



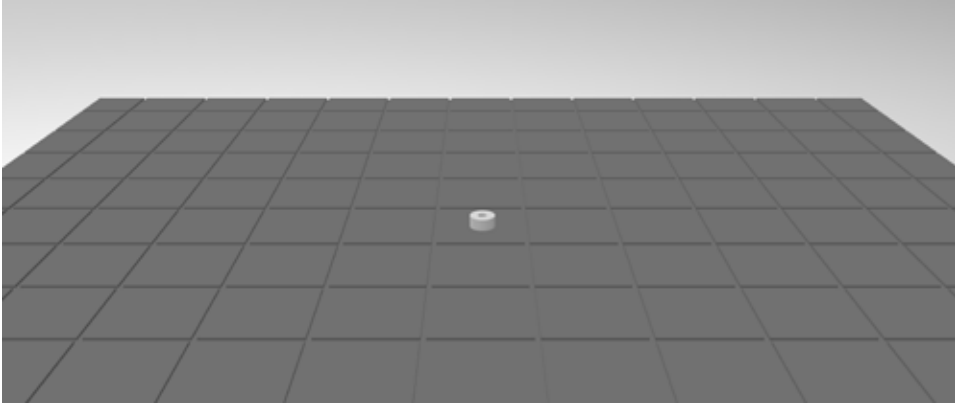
Dart Striker

0.1-0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Optional



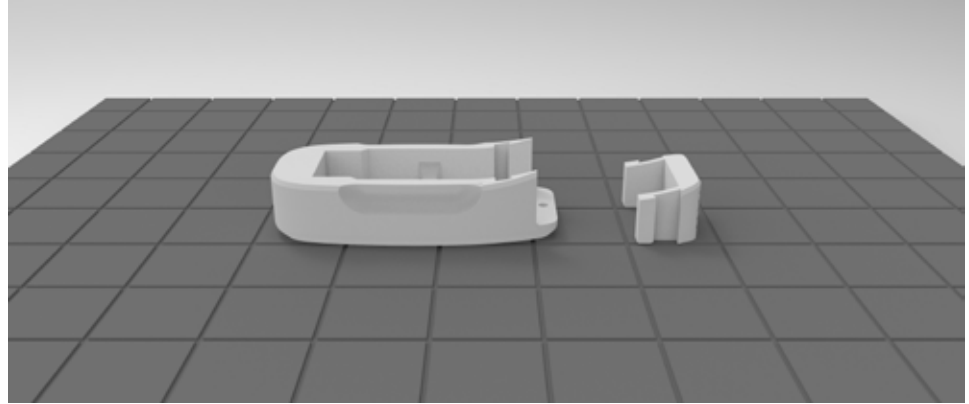
Dart Striker Roller

0.1-0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Optional



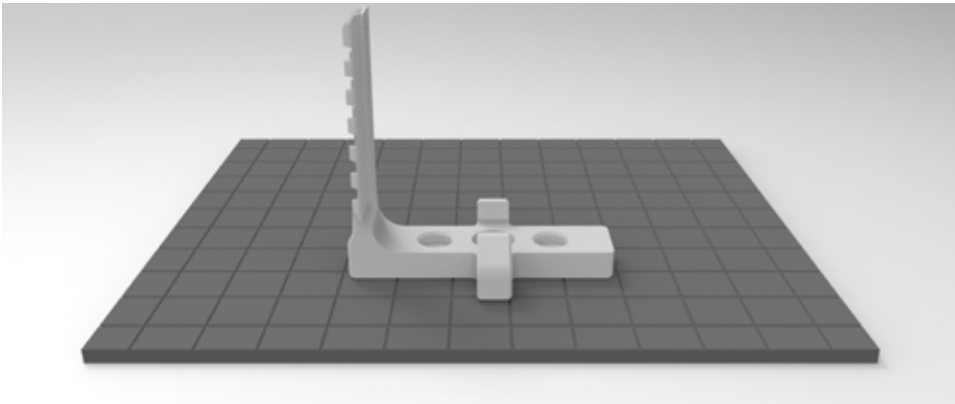
Magazine Baseplate + Lock Tab (Optional)

0.1-0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Optional



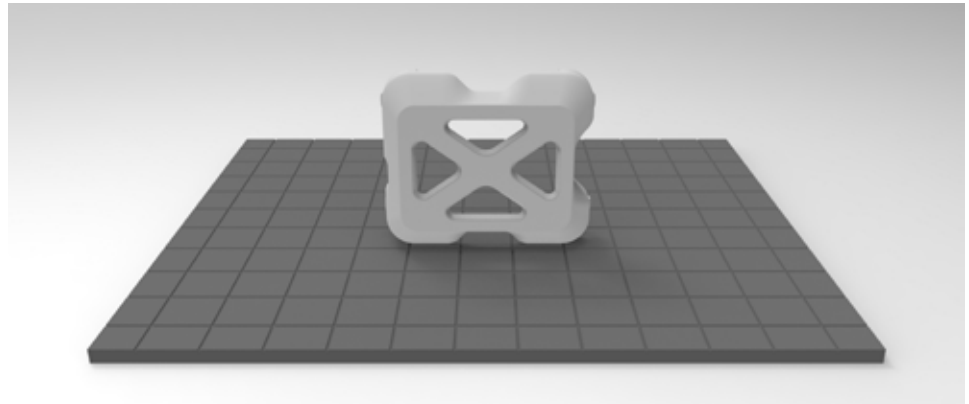
Picatinny Muzzle Cap (Optional)

0.1-0.2 mm Layer Height

3+ Walls

20+% Infill

Brim Optional



Motor Wire Cover (Optional)

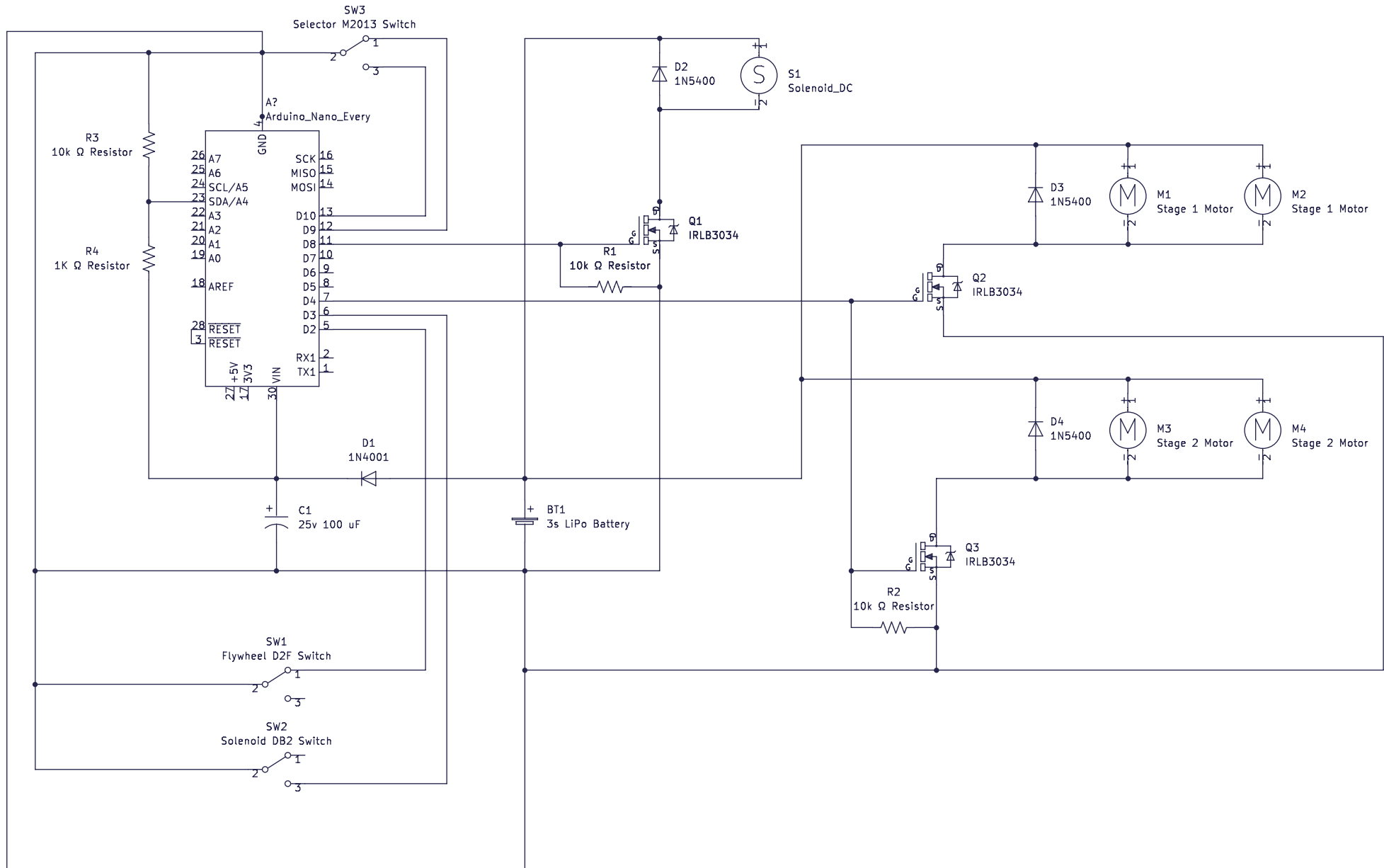
0.1-0.2 mm Layer Height

3+ Walls

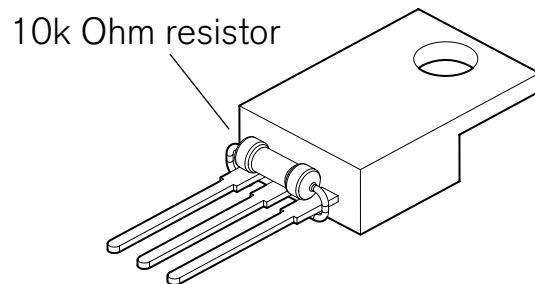
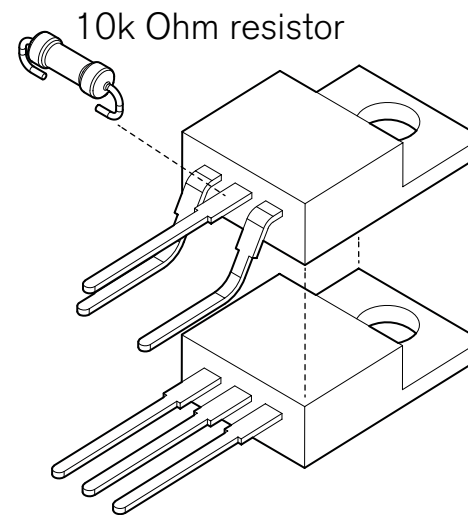
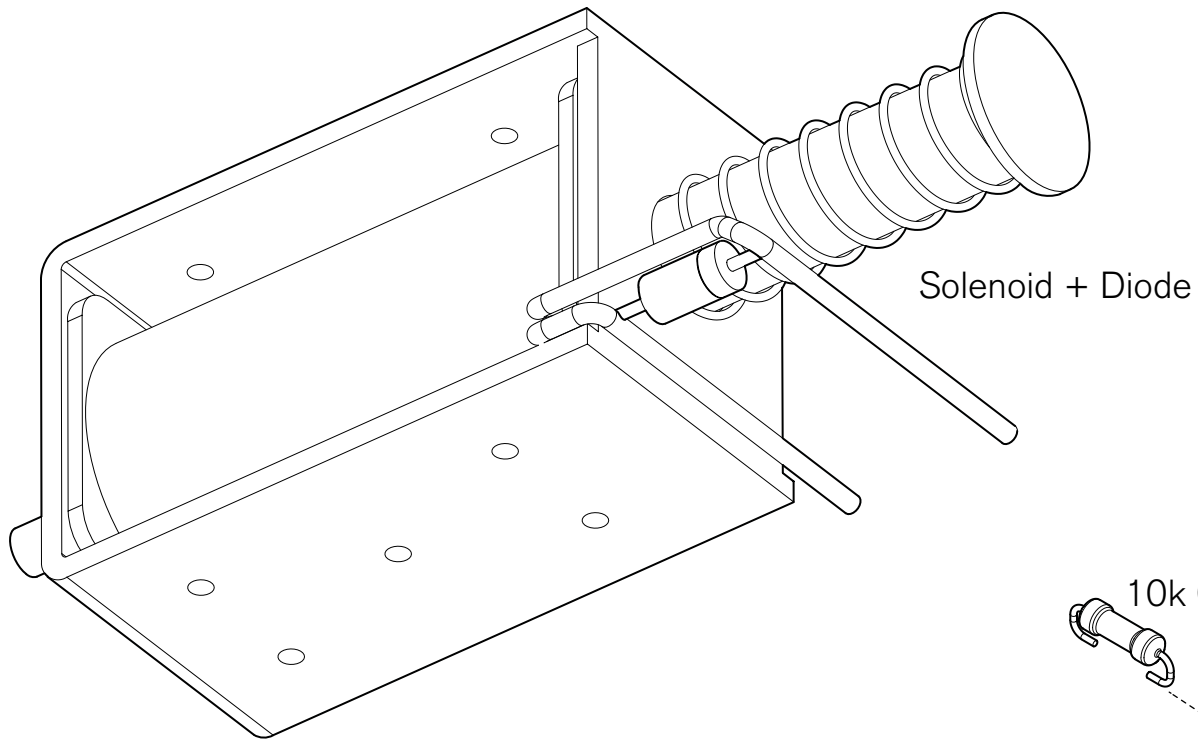
20+% Infill

Brim Optional

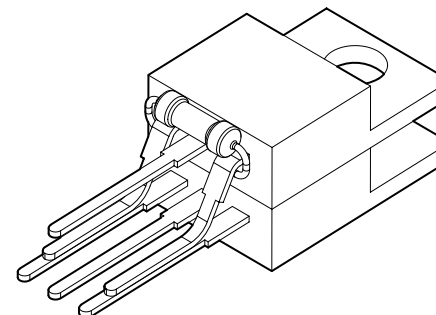
03 wiring



PRE-SOLDERED ASSEMBLIES

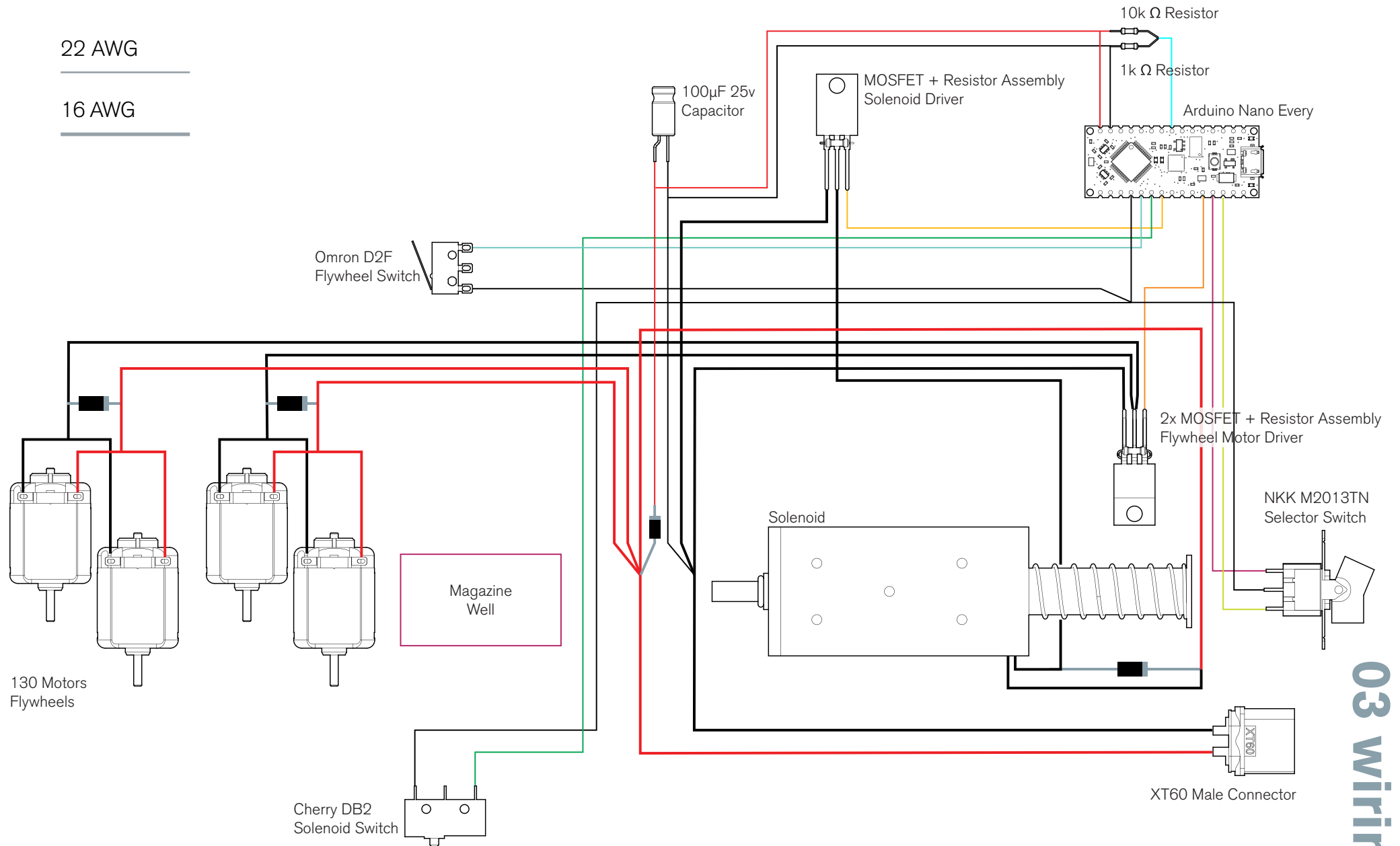


MOSFET assembly for
solenoid



MOSFET assembly for
flywheel motors

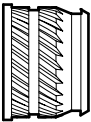
WIRE HARNESS SETUP



MAIN CHASSIS + DART STRIKER HEAT SET INSERTS

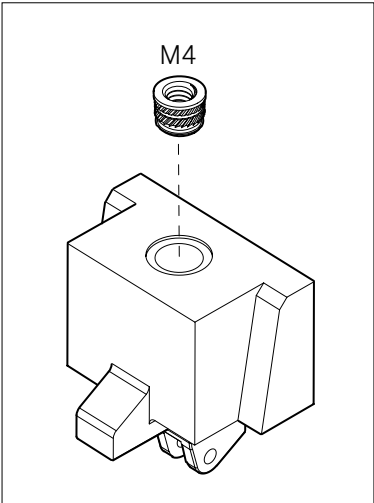
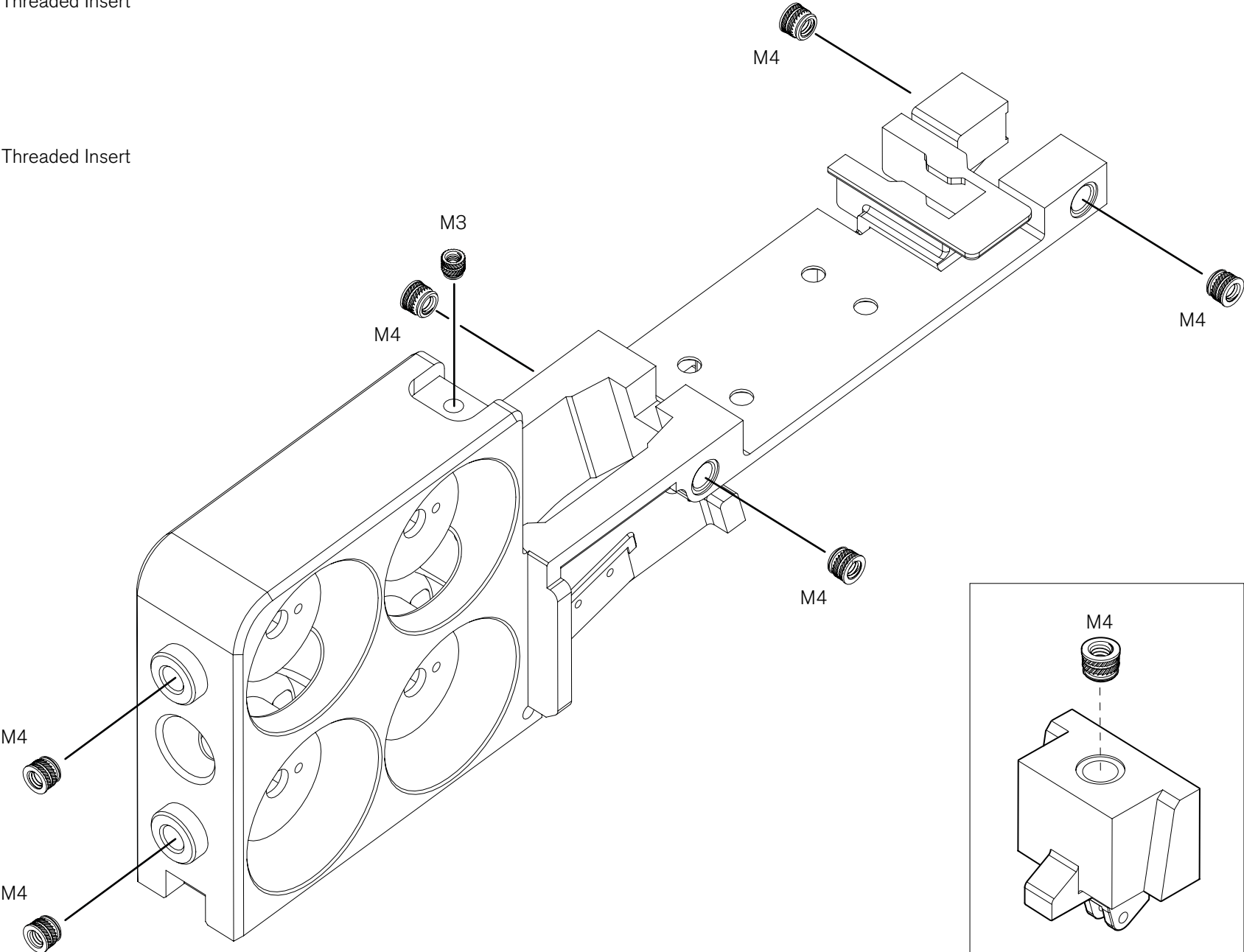
M4 x 4.7mm Threaded Insert

x7



M3 x 4.3mm Threaded Insert

x1

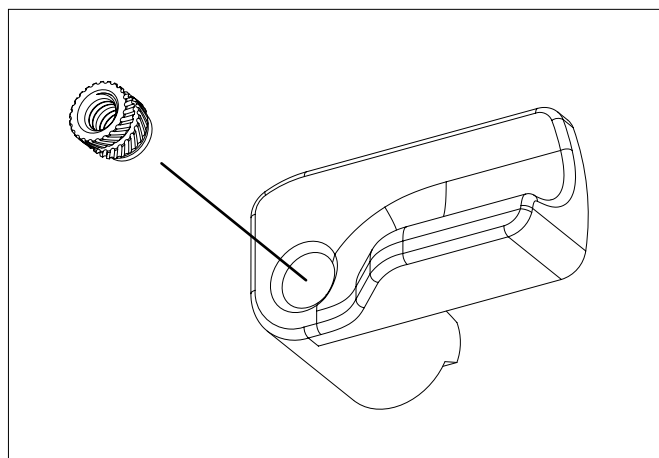
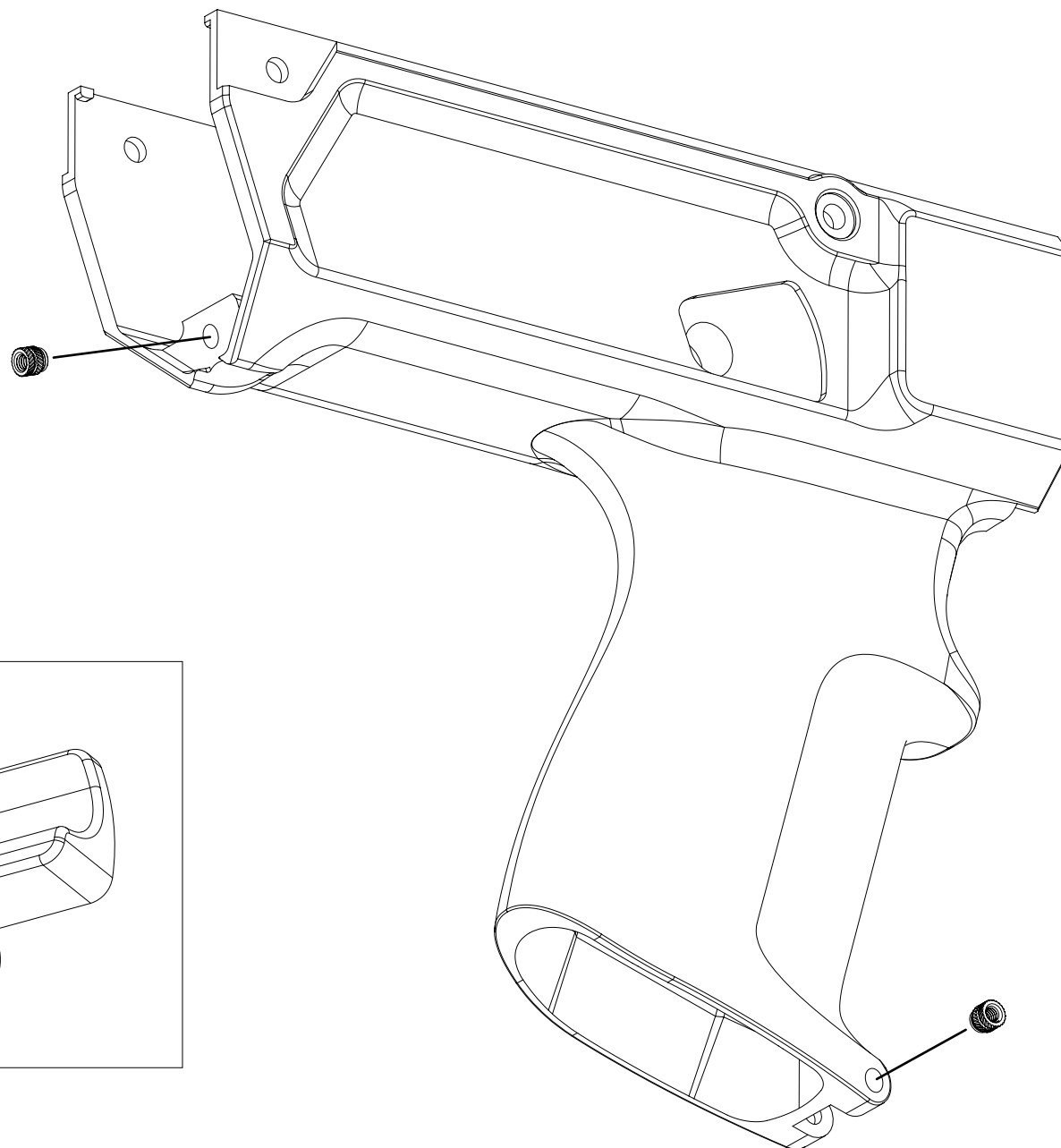


04 assembly

GRIP FRAME + RIGHT MAG RELEASE LEVER HEAT SET INSERTS

M3 x 4.3mm Threaded Insert

x3

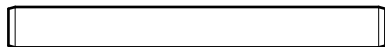


04 assembly

TRIGGER

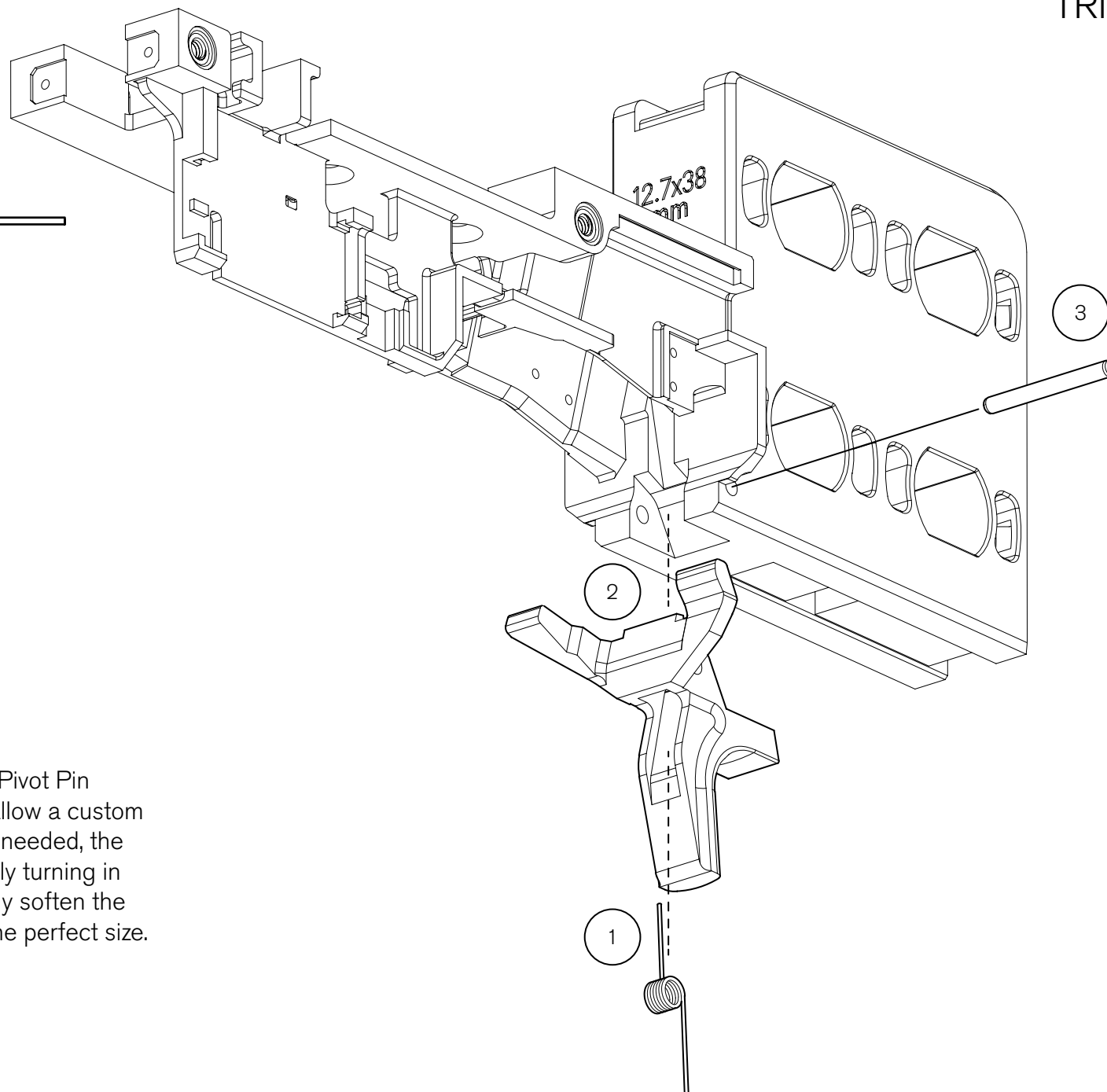
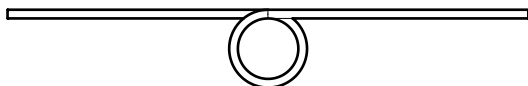
x1

3mm Ø x 28mm Dowel Pin



x1

Trigger Reset Spring



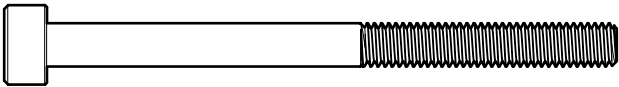
NOTE:

Hole in Main Chassis for Trigger Pivot Pin should be slightly undersized to allow a custom fit to reduce play in the trigger. If needed, the pin should be inserted while slowly turning in a hand drill - the friction will locally soften the plastic and open the hole up to the perfect size.

MAGAZINE RELEASE

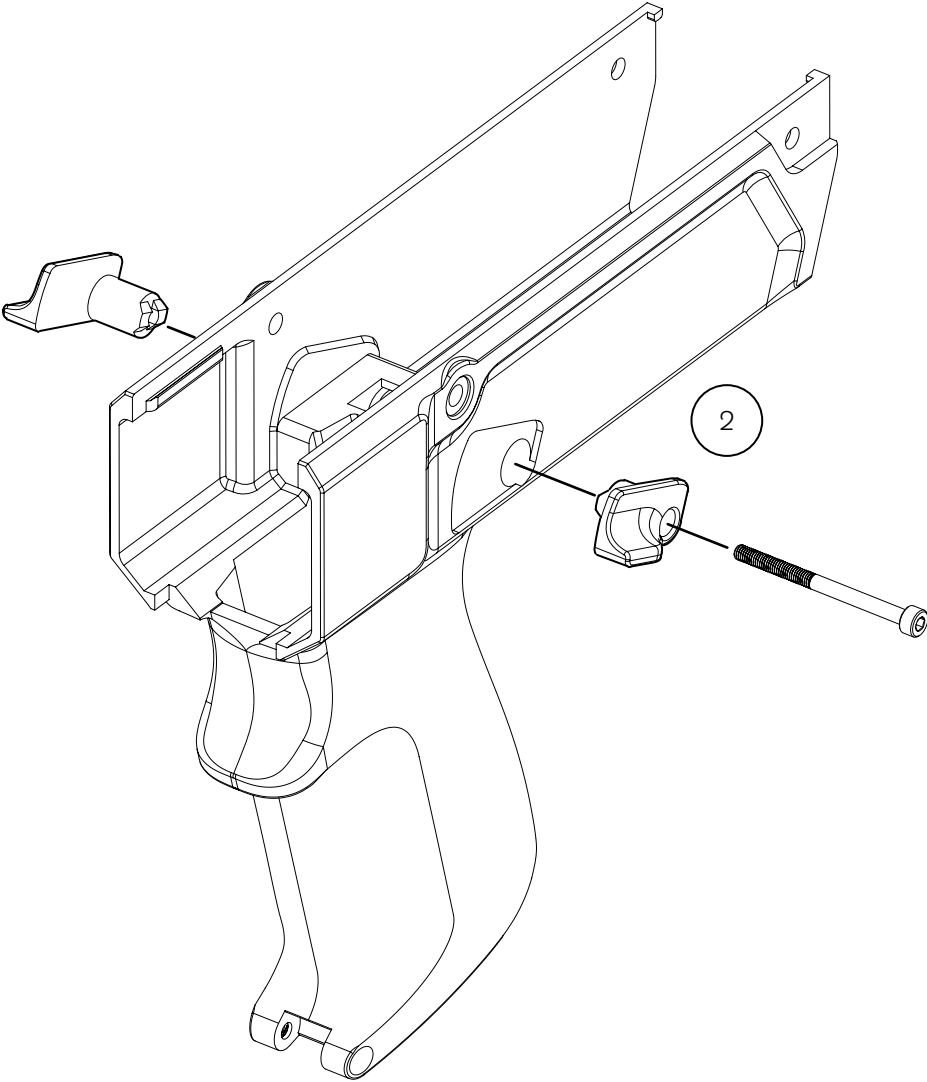
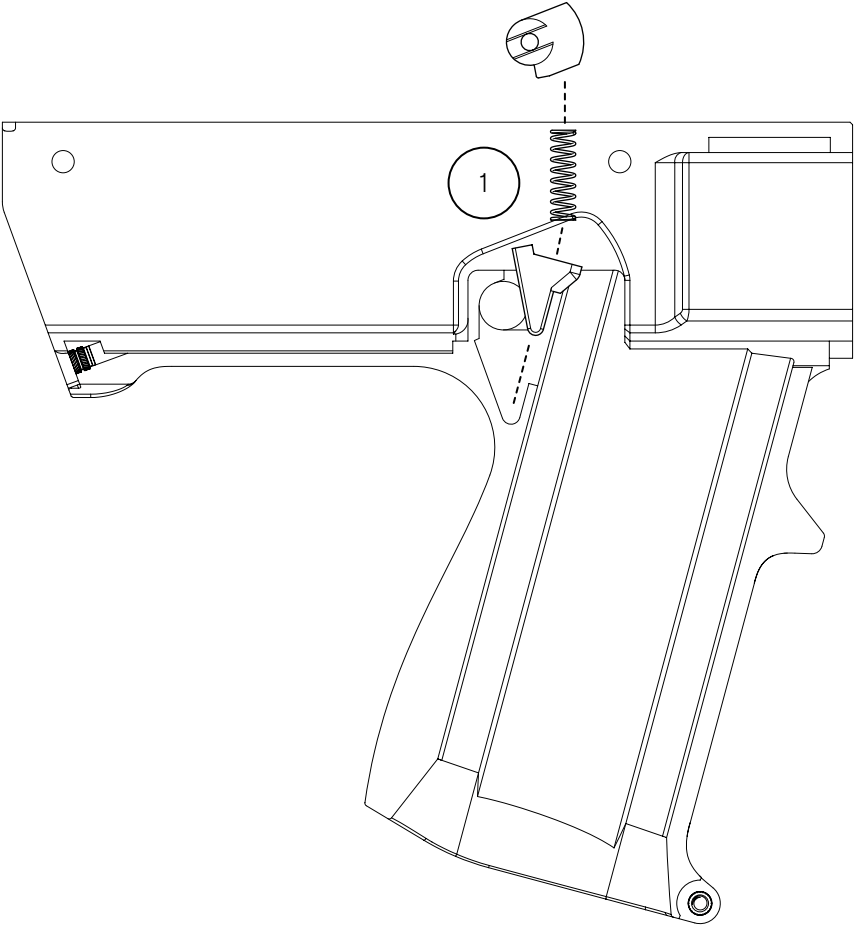
M3 x 45mm

x1

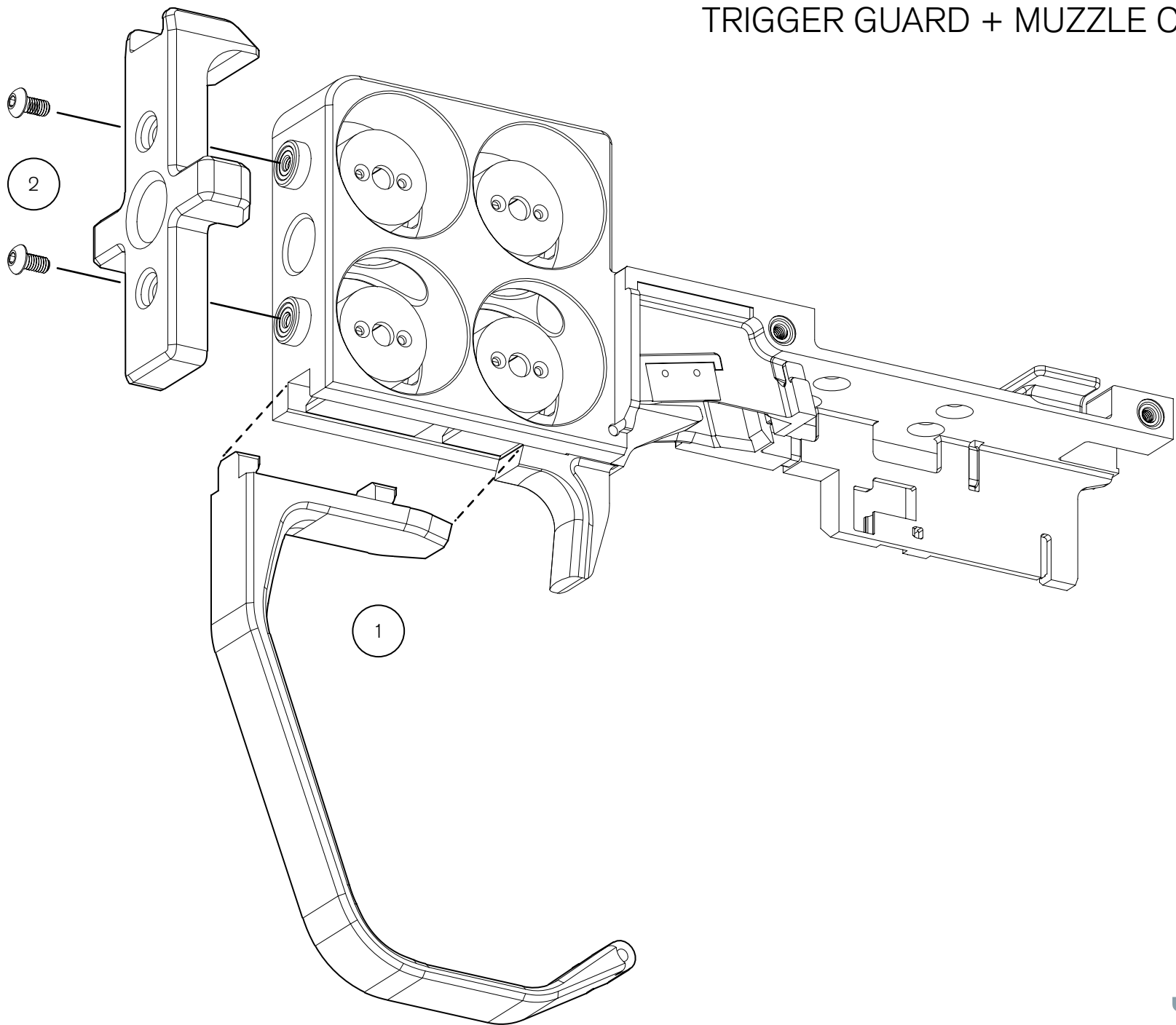
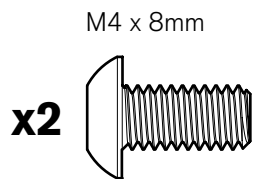


Magazine Release Spring

x1



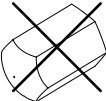
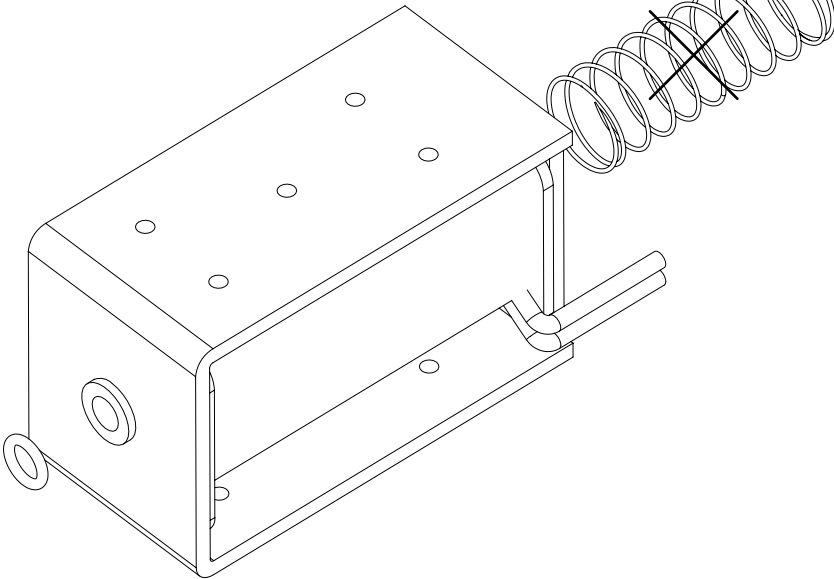
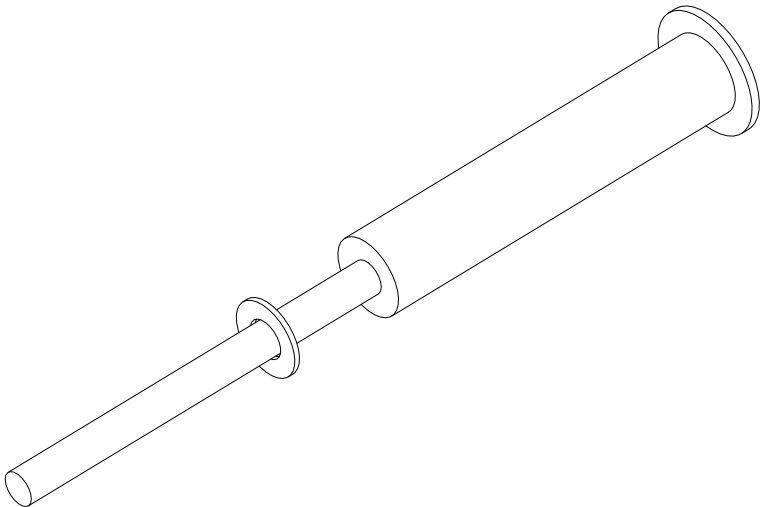
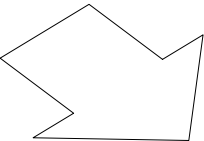
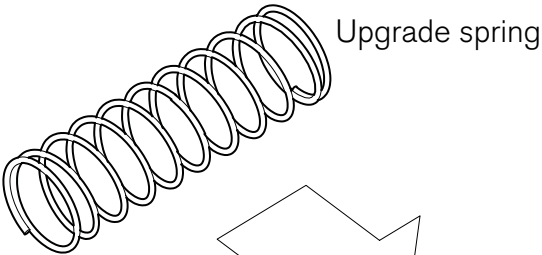
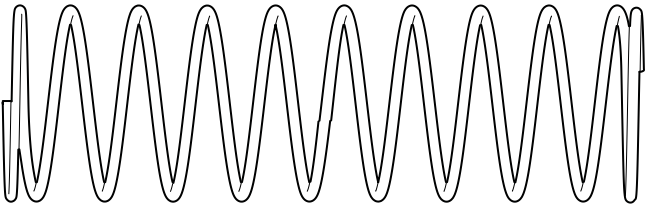
TRIGGER GUARD + MUZZLE CAP



UPGRADING SOLENOID SPRING

Solenoid Upgrade Spring

x1



SOLENOID + SOLENOID SWITCH + SELECTOR SWITCH

#2 x 1/8" Self Tapping Screw

x2

#2 x 3/8" Self Tapping Screw

x2

M4 x 6mm

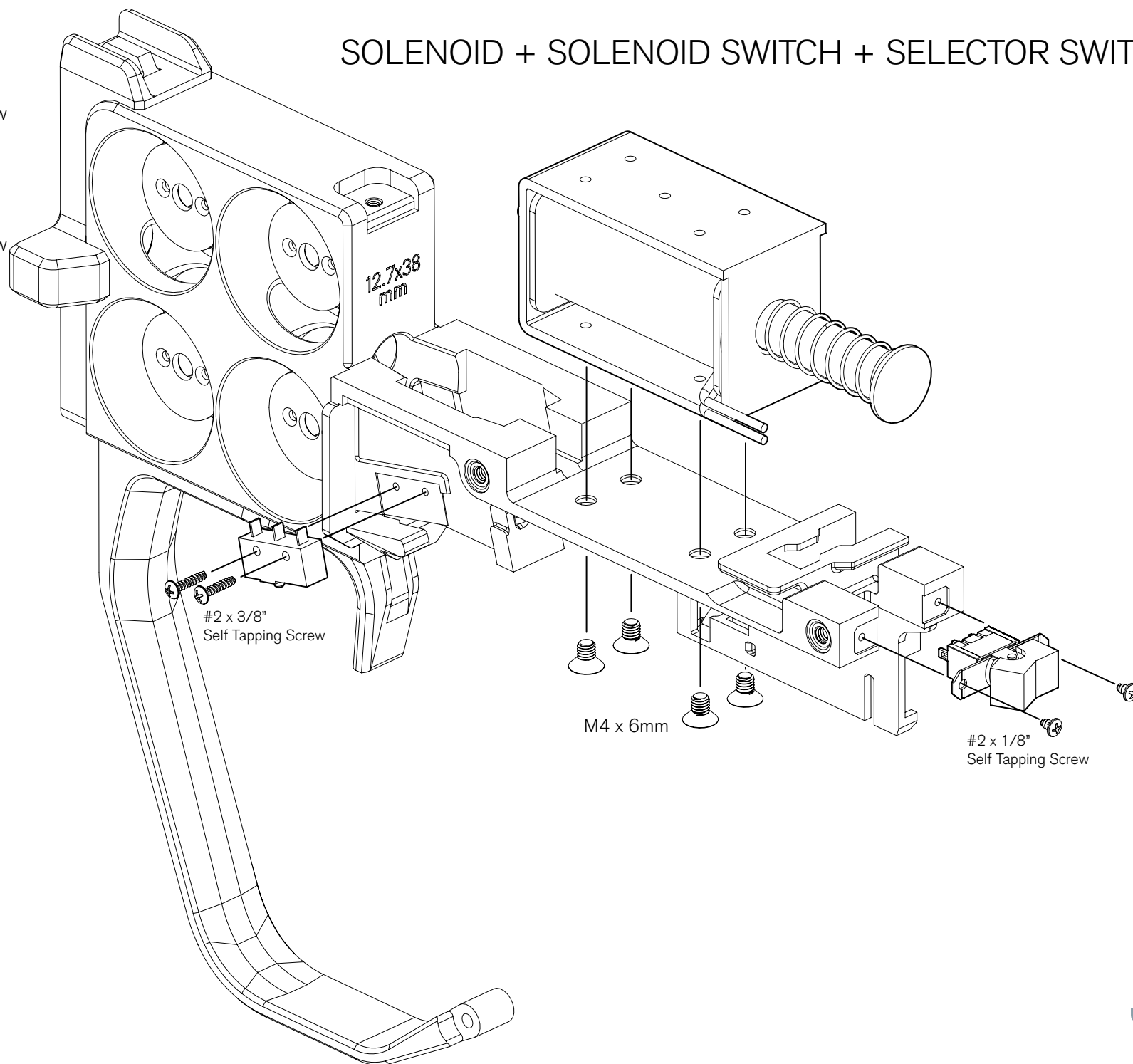
x4

#2 x 3/8"
Self Tapping Screw

M4 x 6mm

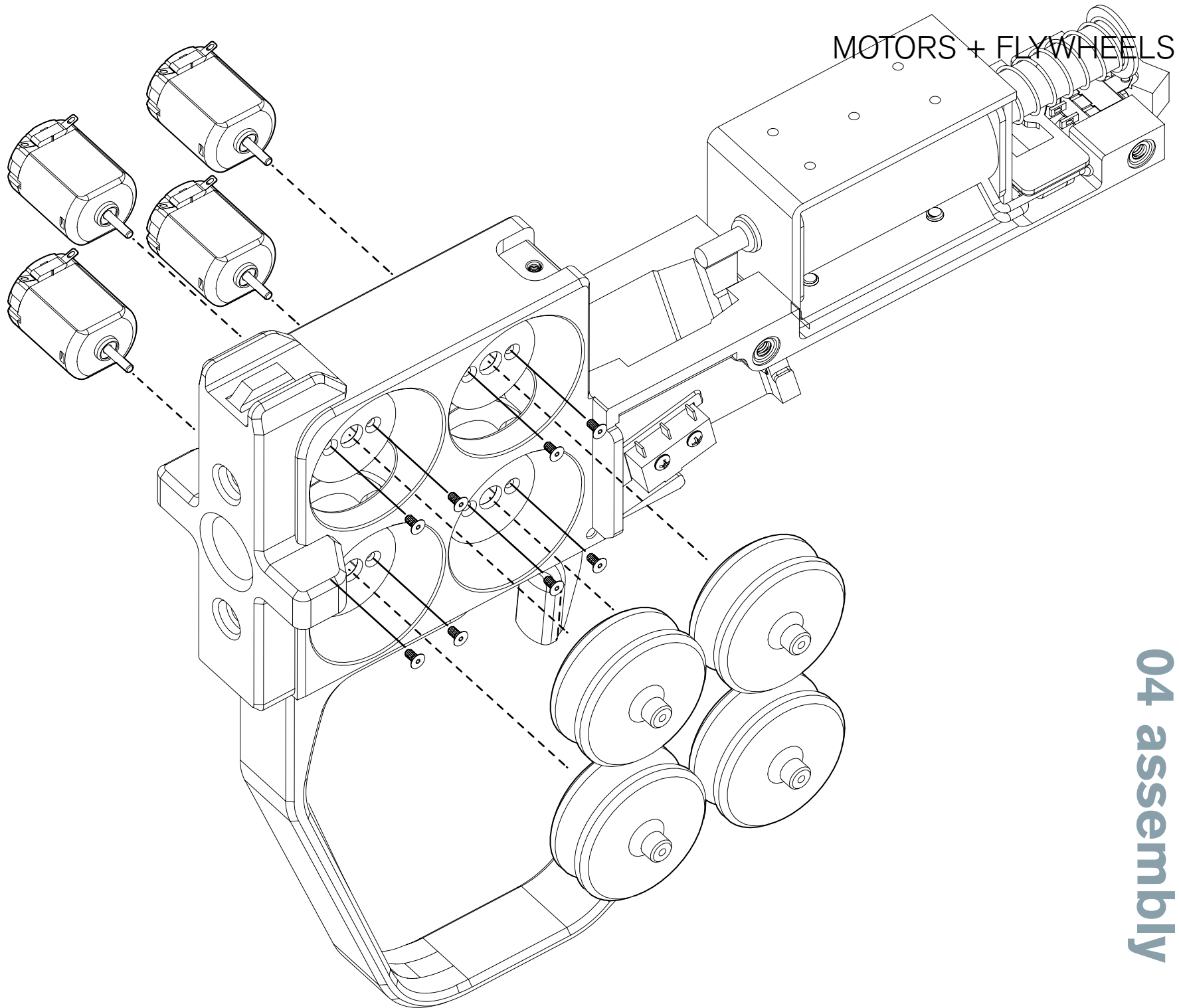
#2 x 1/8"
Self Tapping Screw

04 assembly



MOTORS + FLYWHEELS

x8
M2 x 4mm

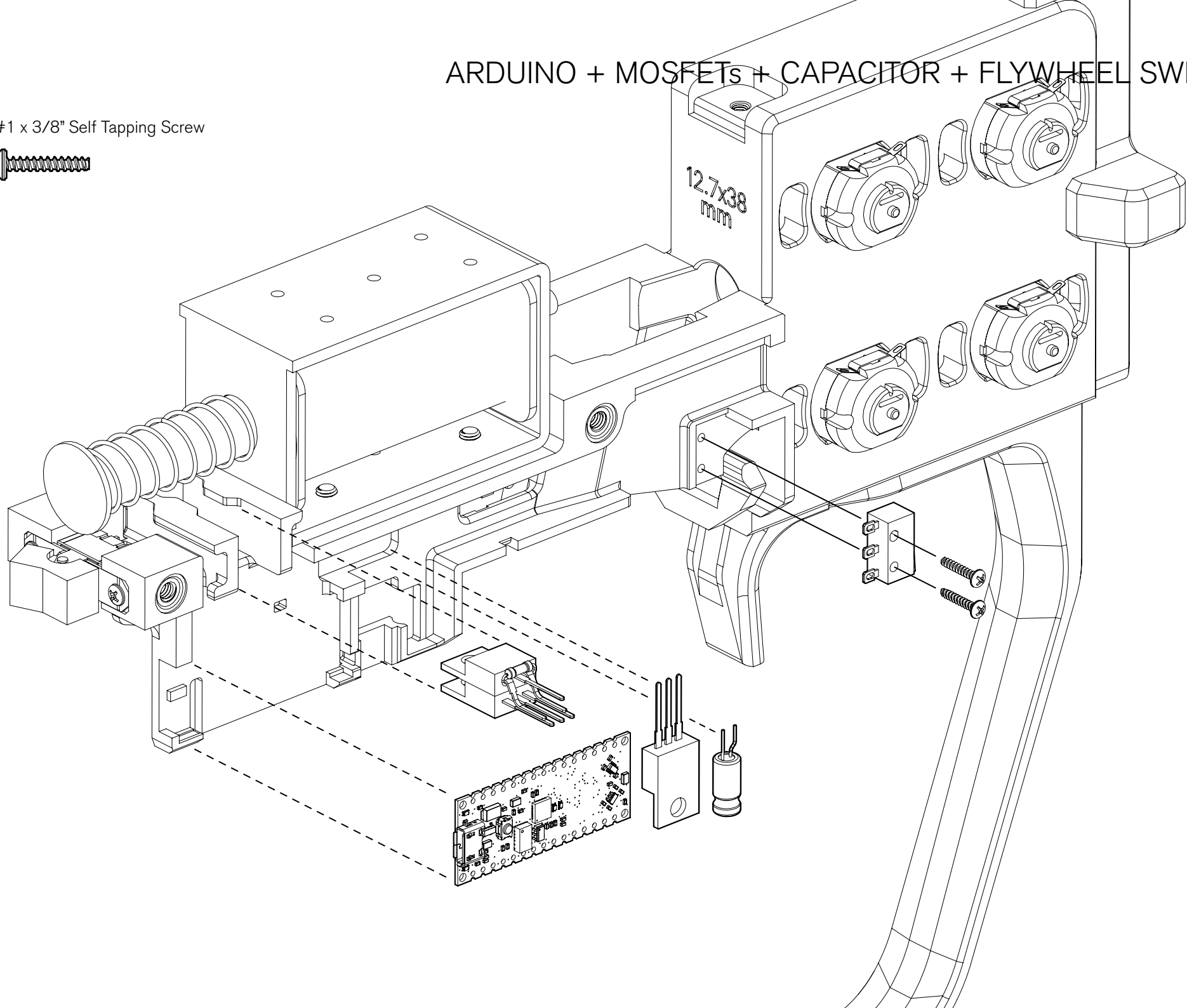


04 assembly

ARDUINO + MOSFETs + CAPACITOR + FLYWHEEL SWITCH

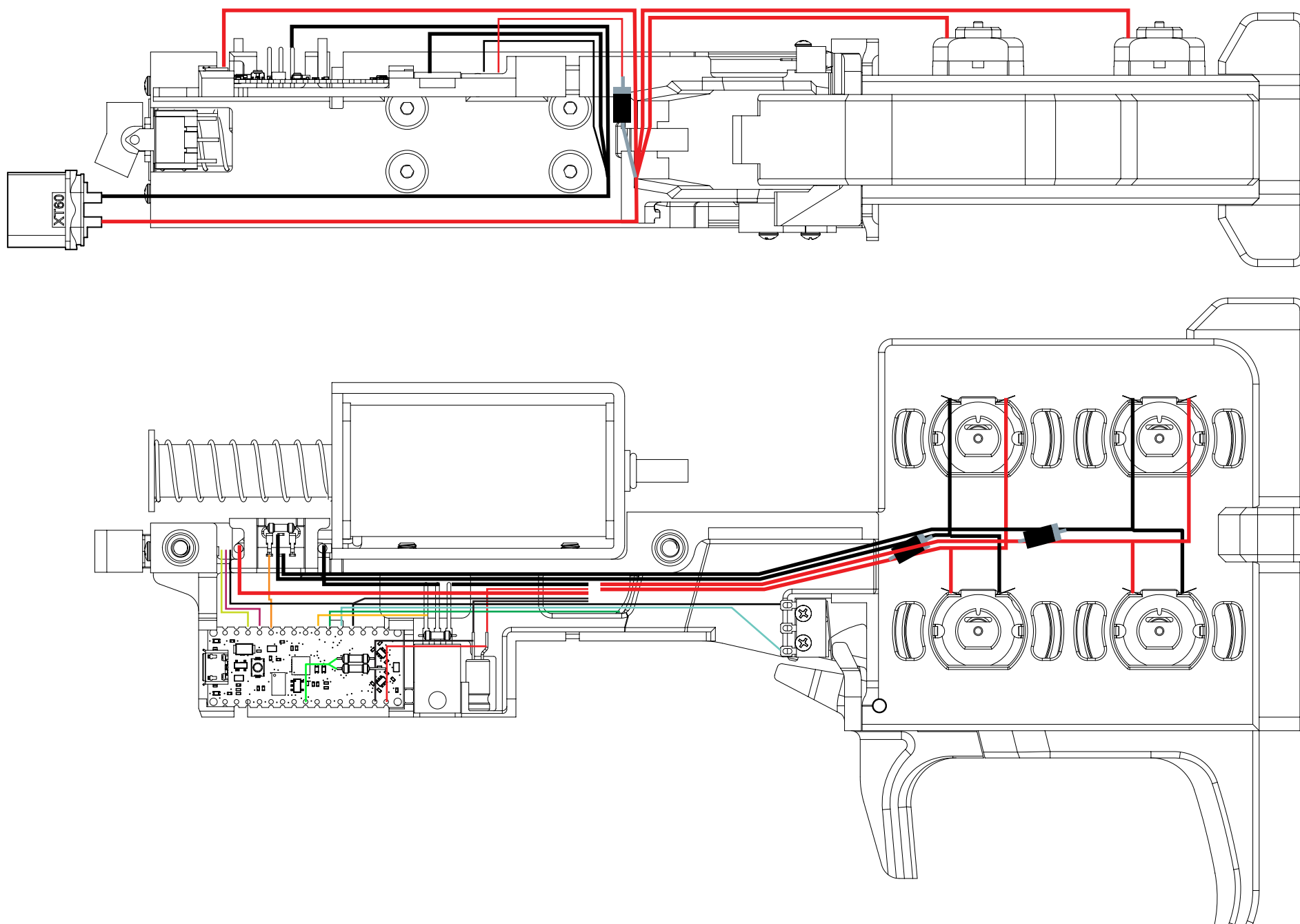
#1 x 3/8" Self Tapping Screw

x2 



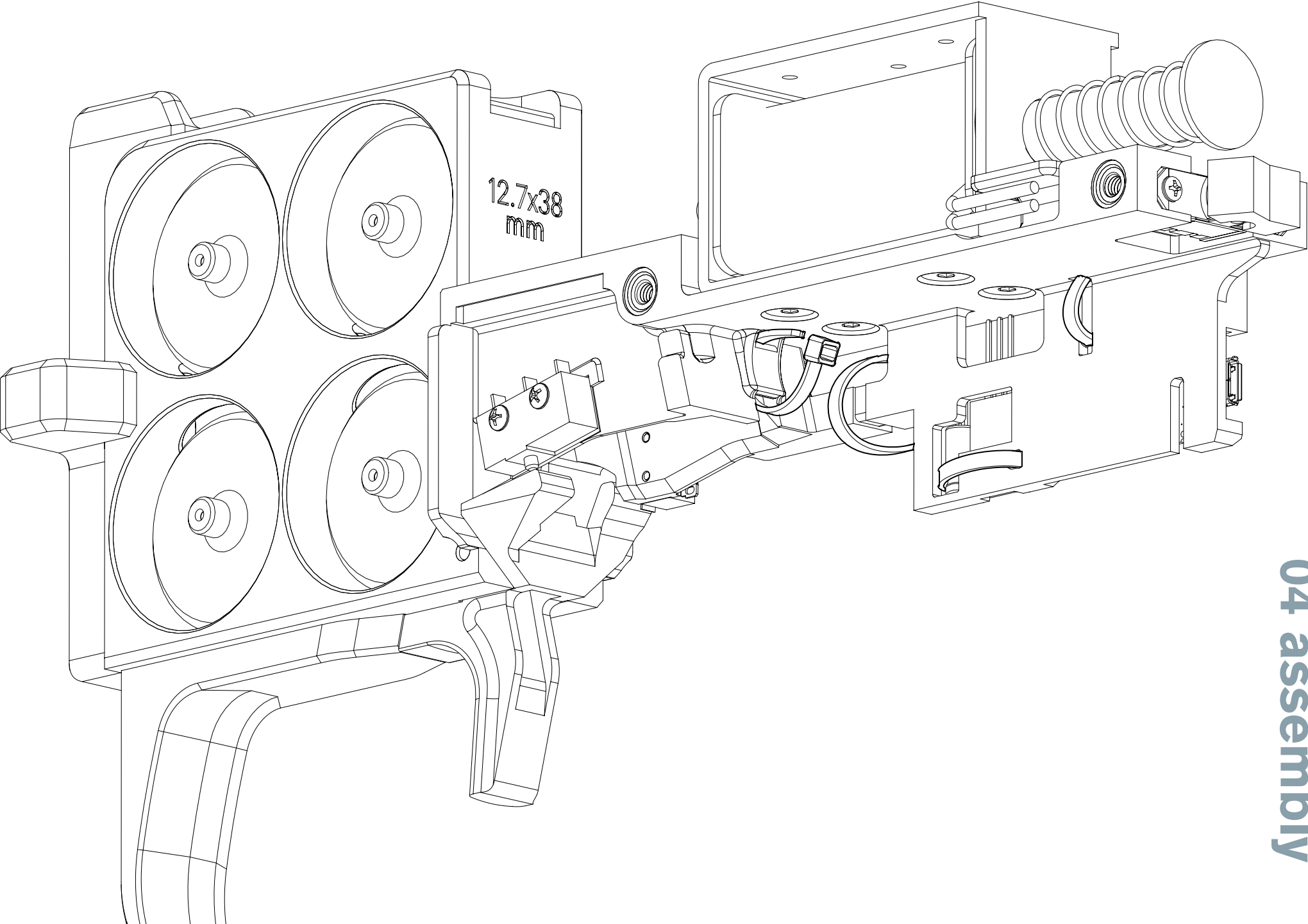
04 assembly

WIRING HARNESS




04 assembly

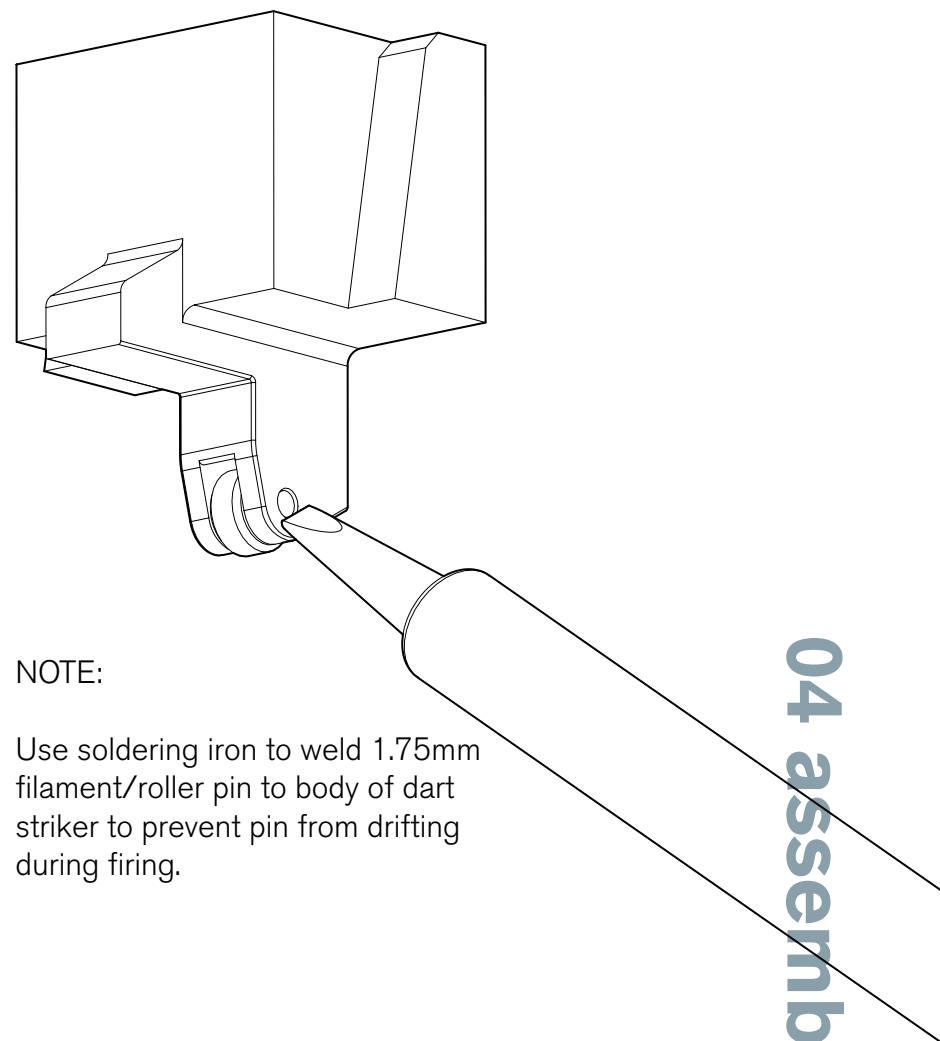
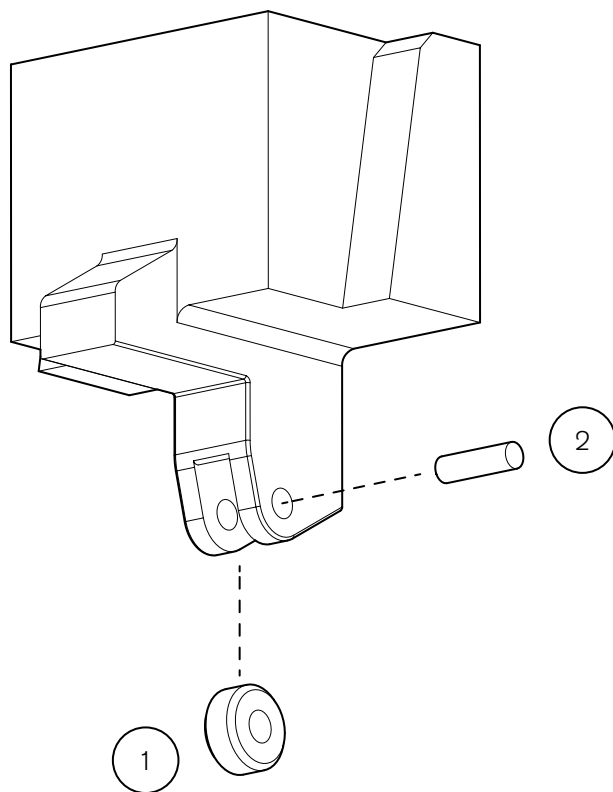
SECURING WIRES WITH ZIP TIES



DART STRIKER + ROLLER

1.75mm filament, 6.5mm long

x1 

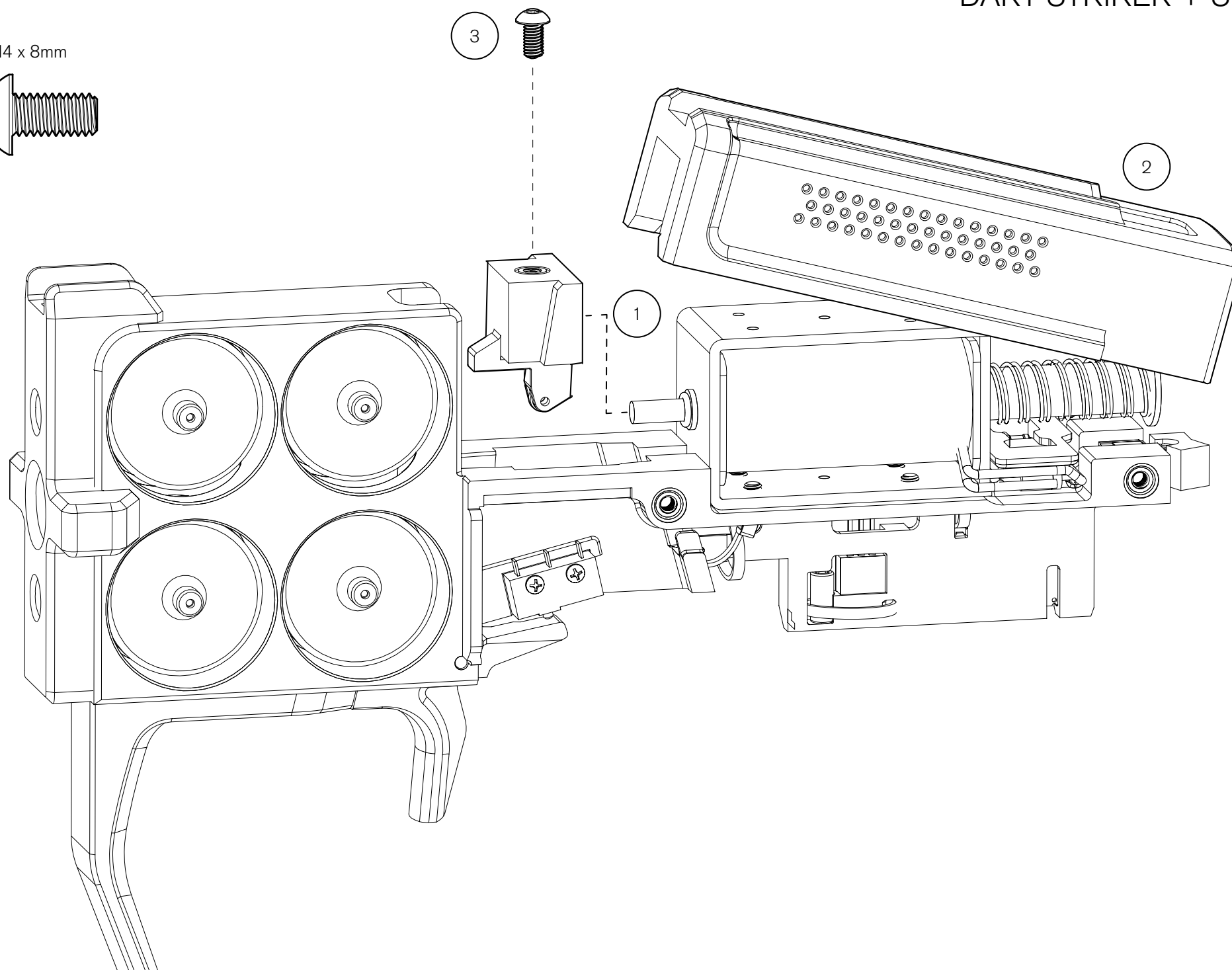


NOTE:

Use soldering iron to weld 1.75mm filament/roller pin to body of dart striker to prevent pin from drifting during firing.

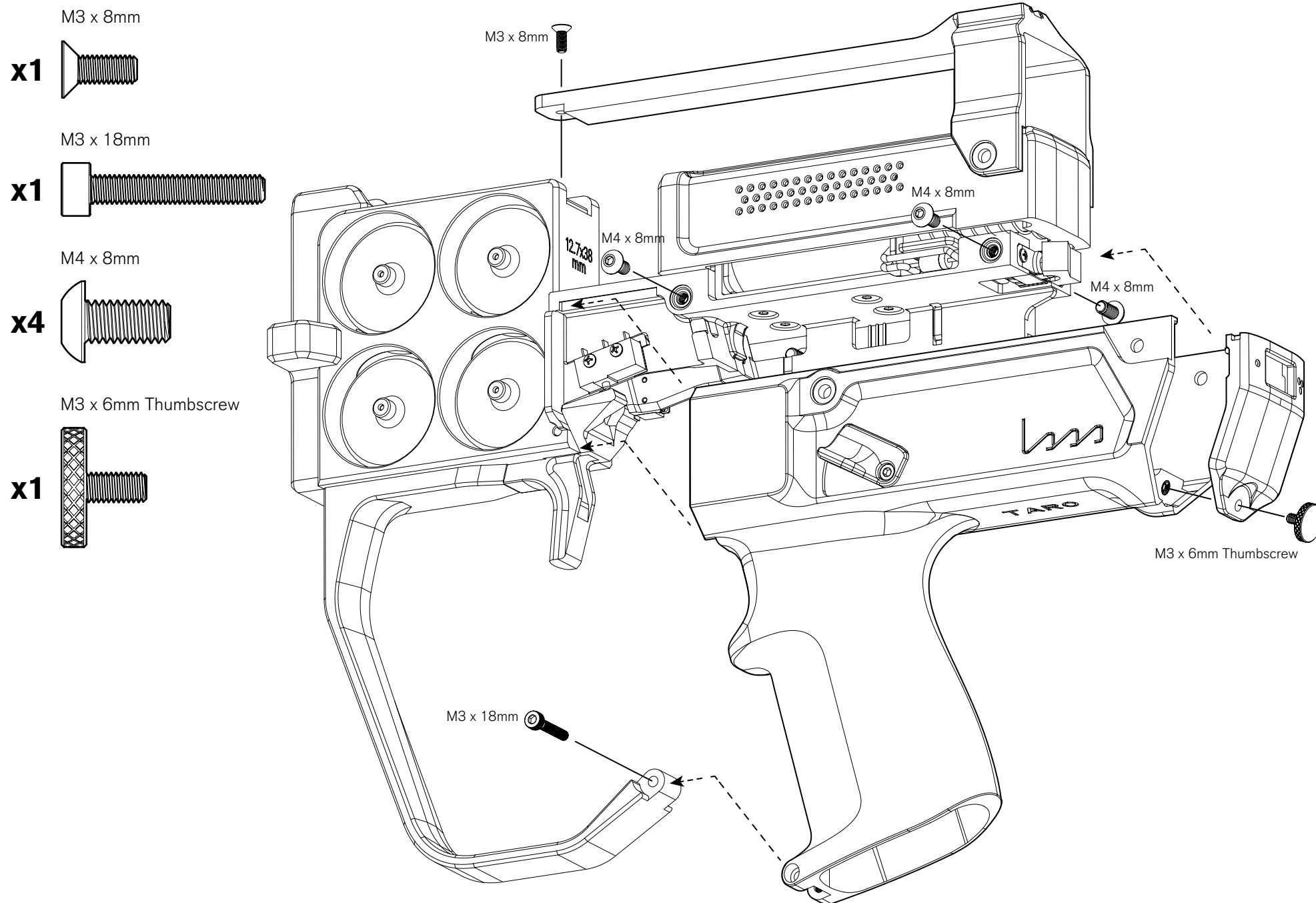
DART STRIKER + SLIDE

M4 x 8mm
x1



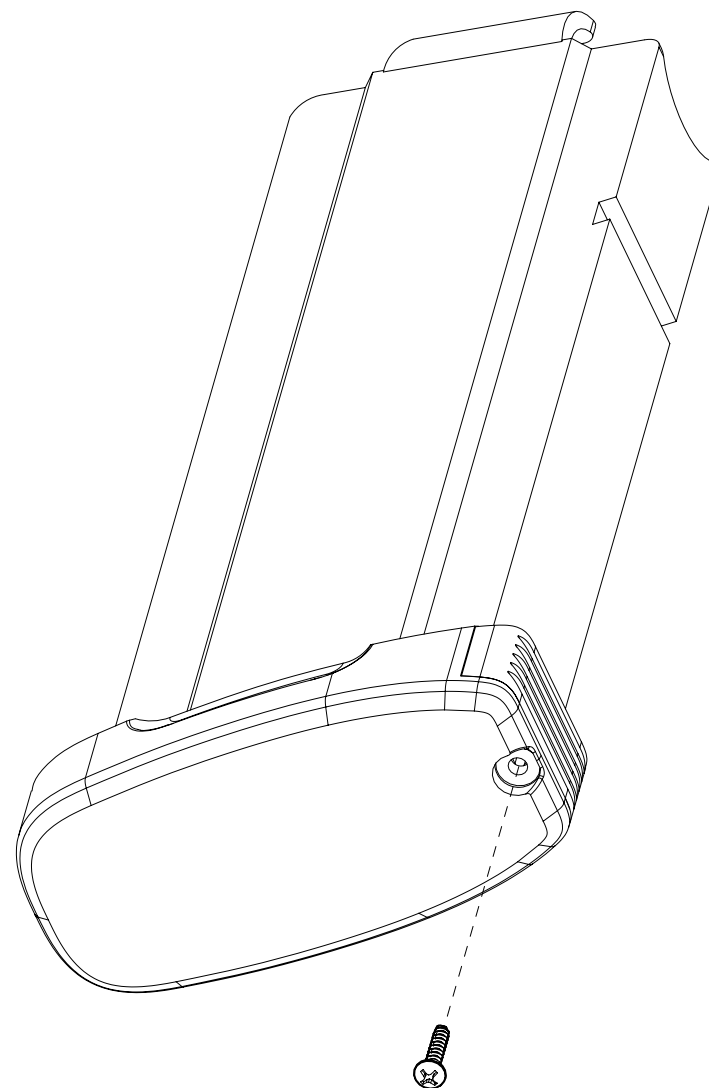
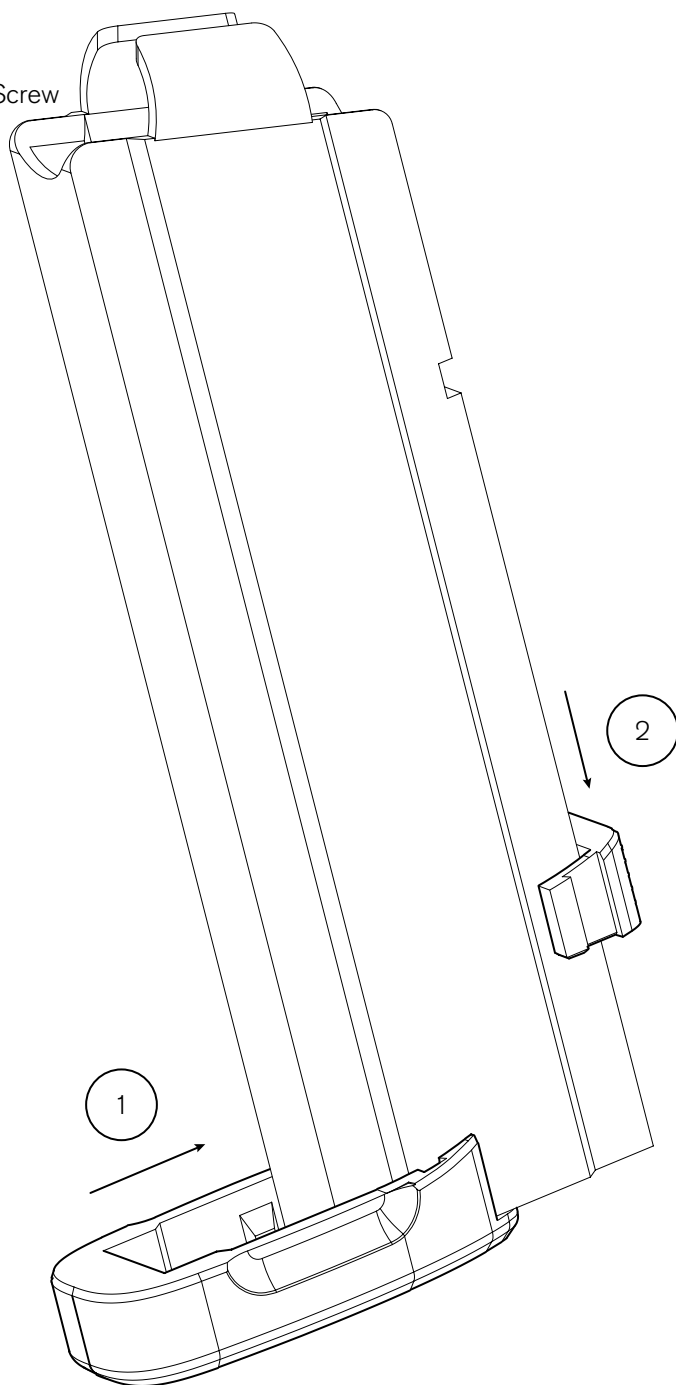
04 assembly

FRAME + SIGHT RAIL + BATTERY DOOR



MAGAZINE BASEPLATE

x1 #1 x 3/8" Self Tapping Screw



04 assembly